

R.W.

FIRE DOORS *and* **HARDWARE**

FUSIBLE LINK



... releases at desired temperatures, thereby providing
AUTOMATIC Fire Protection.

Richards-Wilcox Mfg. Co.

FIRE DOOR DIVISION
AURORA • ILLINOIS



Hi THERE •

**They Put Me
Here to Be
Sure and
Tell Everyone •**

**How R-W Features the Most
Complete Line of Fire Doors
and Hardware Available Today •**

**... They Are Specifically
Designed for Commercial and
Industrial Use.**

Thanks a Lot •

Richards-Wilcox

"The Greatest Name In Fire Doors And Hardware"

R-W features a complete line of Fire Doors and Hardware all of which are "Specifically Designed" for both "Commercial and Industrial Use" . . . This catalog illustrates swinging, sliding and vertical-lift hardware operation . . . Panic bolts, electric operators along with the tiny fusible links that are so vital in fire door operation are also shown . . . Richards-Wilcox manufacturers all these items including the fusible links, under one roof at the Aurora factory . . . assuring the customer of high quality products . . . **all made for each other.**

Pages 8 and 9 describes the advantages of using fire doors electrically operated . . . Allowing you to use fire doors as "high production doors" . . . This page also illustrates the latest in fire protection offered through the "Advanced Fire Detector Units" . . . A unique feature used with R-W "Aut-O-Dor" electric operators.



No. 647
"FyeR-Ward"®
Doors

See Pages 10-11

The "FyeR-Ward" is one the best appearing of all fire doors on the market today . . . this door harmonizes with any type of surroundings.

It is only 1-13/16" thick but is capable of bearing a class "A" label.

The "FyeR-Ward" was produced after many years of engineering by R-W.

A door of this type enhances rather than detracts as do some conventional doors.

The "FyeR-Ward" permits finishing to represent a slab type installation and may be grained to resemble a wood door.

There are many door openings which should be protected by a fire door . . . but have been neglected for the simple reason that an ordinary fire looks cumbersome and would not harmonize with the surroundings . . . but the "FyeR-Ward" is smooth and attractive.



No. 347
"FyeR-Wall"®
Doors

See Pages 12-13

Here is the work horse of the R-W line . . . strong, rugged and adapted to heavy industrial usage.

Strong heavy angles form the outer edge of the door providing the ideal industrial fire door.

This style is ideal where there is a chance of dry rot.

The horizontal and vertical members of the frame are securely welded together making a door of unusual ruggedness and rigidity.

No. 446 Tin Clad Doors **See Pages 14-15**

An economical wood core door consisting of layers of wood fastened together with nails . . . covered with double lock jointed pieces of high quality Terne Plate . . . forming the R-W No. 446 "tin-clad" door.

The combination provides a high quality door that is both serviceable and rugged.



Classifications and Labels

FOR APPROVED FIRE DOOR INSTALLATIONS

Inspected by the Underwriters' Laboratories, Sponsored by the
National Board of Fire Underwriters, Also Approved by
Factory Mutual Laboratories

**BELOW OPENINGS ARE CLASSIFIED AS
A, B, C, ETC., IN ACCORDANCE WITH
THE CHARACTER AND LOCATION OF
THE WALL IN WHICH THEY
ARE SITUATED**

- **CLASS A**

Openings are in division walls separating buildings or a single building into fire sections. Doors protecting such openings are generally required on both sides of the wall. No glass is permitted. "Fire Wall" labels are used on the doors for Class A openings.

- **CLASS B**

Openings are in enclosures to vertical communications through buildings (stairs, elevators, hatchways, etc.). Doors protecting such openings are required on one side of the wall only and may contain a glass vision panel not to exceed 100 square inches in area with neither height or width exceeding 12". "Vertical Shaft" labels are used on doors for Class B openings.

- **CLASS C**

Openings are in corridor or room partitions. Doors protecting such openings are required on one side of the wall only and may contain one or more sash for wired glass. R-W standard fire door sash are made to receive from one to nine lights of glass in several standard sizes up to 400 square inches in area. "Corridor or Room Partition" labels are used on doors for Class C openings.

- **CLASS D**

Openings are in exterior walls subject to severe fire exposure. Doors may contain one or more sash for wired glass. R-W standard fire door sash are made to receive from one to nine lights of glass in several standard sizes up to 400 square inches in area. "Exterior Wall" labels are used on doors for Class E openings.

- **FIRE ESCAPE**

Openings are in exterior walls and are classified the same as Class D and Class E. Doors for protecting such openings are of the swinging type only and are equipped with hardware arranged so that each door can always be unlocked and opened from within by the single operation of turning its knob or handle or pushing against a panic bar. "Exterior Fire Escape" labels are used on doors for fire escape openings.

- **SHUTTERS**

Are used on the outside of exterior walls to cover window openings. Glass is not permitted in shutters. "Fire Shutter" labels are used on shutters.

- **OVERSIZE DOORS**

Doors exceeding the size limits established by the Underwriters' Laboratories for standard fire protection cannot be labeled.

However, in such cases, we can furnish a certificate which certifies that except for the size, the doors are manufactured to the requirements for doors of this class and type. This certificate cannot be issued unless the doors have first been inspected by an Underwriters' representative in our plant — this information must be stated on the order when it is received.

- **LABELED FIRE DOOR OPERATION**

We are authorized to label single sliding doors, pairs of sliding doors, single swinging doors, pairs of swinging doors and vertical lift doors. The maximum size limitations for openings of the different classes and different kinds of fire doors as well as the methods of mounting permitted for different kinds of fire doors, are given on the pages describing each fire door.

- **CAUTION**

Maximum insurance premium credits and satisfactory fire protection are only effective when approved and labeled fire doors are mounted with approved and labeled fire door hardware.

Do not take a chance on a fire door made up by someone not qualified to provide a door that will not be approved after it is installed.

- **SHIPPING AND LOADING LIMITATIONS**

A shipment containing articles of dimensions which do not permit loading through a railroad car center side doorway 6' wide by 9' 4" high shall be charged at actual weight and authorized rating, subject to a minimum charge of 4,000 pounds at the first class or column 100 rate for the entire shipment. The largest door that can be loaded normally and at the regular rate, should not, including the crating, exceed 10' 2" by 10' 4". In other words, the door or object before crating should not exceed 9' 10" by 10'. (The Traffic Department should be contacted regarding the extent sizes can be increased on the largest dimension in relation to varying smaller or narrowing dimensions.)

Door or objects for shipment via truck cannot, including the crating, exceed 7' in the largest dimension.

- **RATINGS AND TEMPERATURE RISE**

In addition to the A, B, C, etc., labeling system used nationally in the past, there is a newer rating system. This is the "temperature rise rating system" which deals with heat transmission through the door proper. The table to the top right illustrates both of these systems for use with local preference.

Underwriters' Laboratories, Inc.
INSPECTED

FIRE DOOR NO. [REDACTED]

RATING: 3 HR. (A) TEMP. RISE - 30 MIN. - 250 F. MAX.

EMBOSSSED BRASS LABEL

Label and Hardware

Classifications

OF APPROVED INSTALLATIONS

FIRE DOOR LABELS
(INCLUDING TEMPERATURE RISE DATA)

Type of Locations	Rating Periods		R-W Doors					Permissible Glass Area
	Rating	Temperature Rise	446 2-Ply	446 3-Ply	647	347	1347	
Fire Door for Opening in Fire Wall.....	3 Hr. (A)	30 Min. 250 F. Max.	—	x	—	—	—	None
	3 Hr. (A)	30 Min. 650 F. Max.	—	—	*	*	*	
	3 Hr. (A)	*	—	—	—	—	—	
Fire Door for Opening in Vertical Shaft.....	1½ Hr. (B)	30 Min. 250 F. Max.	*	*	—	—	—	Up to 100 Square Inches per Opening
	1½ Hr. (B)	30 Min. 650 F. Max.	—	—	—	—	—	
	1½ Hr. (B)	*	—	—	x	x	x	
Fire Door for Opening in Corridor or Room Partition	1½ Hr. (B)	30 Min. 250 F. Max.	—	—	—	—	—	Up to 1296 Square Inches per Light
	1½ Hr. (B)	*	—	—	—	—	—	
	1½ Hr. (B)	*	—	—	—	—	—	
Fire Door for Opening in Exterior Wall (Subject to Severe Fire Exposure)	¾ Hr. (C)	*	x	x	x	x	x	Up to 1296 Square Inches per Light
	¾ Hr. (C)	*	x	x	x	x	x	
	¾ Hr. (C)	*	x	x	x	x	x	
Fire Door for Opening in Exterior Wall (Subject to Moderate Fire Exposure)	1½ Hr. (D)	30 Min. 250 F. Max.	x	x	—	—	—	None
	1½ Hr. (D)	30 Min. 650 F. Max.	—	—	—	—	—	
	1½ Hr. (D)	*	—	—	x	x	x	
Fire Door for Opening in Exterior Wall (Subject to Moderate Fire Exposure)	¾ Hr. (E)	*	x	x	x	x	x	Up to 720 Square Inches per Light
	¾ Hr. (E)	*	x	x	x	x	x	
	¾ Hr. (E)	*	x	x	x	x	x	

*Indicates labels do not show any temperature limits. This means that the heat transmission is in excess of 650 F. at 30 minutes.

HARDWARE REQUIREMENTS FOR LABELED SINGLE SLIDING FIRE DOORS

Label and Opening Class	Doors	d—MAXIMUM AREA AND SIZES OF OPENINGS									
		AREA 120'—WIDTH 12'—HEIGHT 12'					AREA 32'-0"—WIDTH 4'-0"—HEIGHT 8'-0"				
		Inclined Top		Level Top Std. Headroom		Level Top Low Hdrm.	Inclined Top		Level Top Std. Headroom		Level Top Low Hdrm.
		2 Link	1 Link	2 Link	1 Link	1 Link	2 Link	1 Link	2 Link	1 Link	1 Link
"Fire Wall" for Class A Opening	347-1347	1102	a 1201	1315	a 1303	b 1304					
	446-3, 647	102-3	a 201-3	315-3	a 303-3	b 304-3					
"Vertical Shaft" for Class B Openings	347-1347	1102	a 1201	1315	a 1303	b 1304					
	446-3, 647	102-3	a 201-3	315-3	a 303-3	b 304-3					
"Corridor or Room Partition" for Class C Openings	347-1347	1102	1201	1315	a 1303	b 1304					
	446-3, 647	102-3	a 201-3	315-3	a 303-3	b 304-3					
"Exterior Wall" for Classes D-E-F Openings	347-1347	c 1102	c-a 1201	c 1315	c-a 1303	c-b 1304					
	446-3, 647	c 102-3	c-a 201-3	c 315-3	c-a 303-3	c-b 304-3					
"Fire Shutter" for Exterior Windows	347-1347	c 1102	c-a 1201	c 1315	c-a 1303	c-b 1304					
	446-3, 647	c 102-3	c-a 201-3	c 315-3	c-a 303-3	c-b 304-3					

- a—Single link fixtures are not acceptable in some territories.
- b—Headroom is too low for practical use of two link hardware.
- c—Exterior doors seldom require automatic closing devices.
- d—Hardware for oversize openings where permitted, is the same as listed below.
- e—Alternate to flat track hardware. Operates on No. 232 track instead of No. 102 track.

Hardware Requirements for Pairs of Labeled Swinging Fire Doors

Label and Opening Class	Doors	i—MAXIMUM SIZE AND AREA OF OPENINGS				
		Width 10' Height 12'	Area 64' Width 8' Height 8'	Width 6' Height 10'	Width 8' Height 8'	Width 6' Height 8'
		HARDWARE	HARDWARE	HARDWARE	HARDWARE	HARDWARE
"Fire Wall" for Class A Openings	347-1347 446-3 647	1506 506-3 2506				
"Vertical Shaft" for Class B Openings	347-1347 446-3 647 446-2 1647	b 1506 b 506-3 b 2506	b 506-2		c-d-e-g 1647	
"Corridor or Room Partition" for Class C Openings	347-1347 446-3 647 446-2 1647	b 1506 b 506-3 b 2506	b 506-2		c-d-e-g 1647	
"Exterior Wall" for Classes D-E-F Openings	347-1347 446-3 647 446-2 1647	a 1506 a 506-3 a 2506	a 506-2		a-d-e-g 1647	
"Fire Escape" for Classes D-E-F Openings	347-1347 446-3 647 446-2 1647			a-f-h 1506 a-f-h 506-3 a-f-h 2506		a-d-f-h 1647
"Fire Shutter" for Exterior Windows	347-1347 446-3 647 446-2	1407 407-3 2407				

- a**—Automatic closing devices are generally not required on exterior or fire escape openings. If required, door closers are preferable.
- b**—Door closers may be used instead of standard automatic closing devices, if desired.
- c**—Door closers and coordinators or door controls should be used with this hardware on vertical shaft and corridor or room partition doors.
- d**—Hinges may be butts, half surface or full surface hinges not less than 4" high and not less than .134" (10 ga.) thick or R-W Nos. 1035BB and 1036BB not less than 12" long. One hinge must be furnished for each 30" of door height or fraction thereof. Doors must be reinforced for all hinges except R-W Nos. 1035BB and 1036BB which are attached with shoulder bolts.
- e**—Doors must be fitted with one latch or lock, mortised or rim type of any make provided the latch bolt has a 3/4" throw. Dead bolts not acceptable.
- f**—Any make of surface type panic bolt may be substituted provided the latch has a 3/4" throw. No other locks or latches required.
- g**—Inactive door must be provided with top and bottom flush bolts, lever type. Doors must be cut out and reinforced for same.
- h**—Omit regular latches and locking bolts; substitute Nos. 144 and 244 panic bolts. (See pages 74-75.)
- i**—Hardware for oversize openings where permitted is the same as listed below.



**Do You Have
a Special Fusible
Link Problem?
Let R-W Solve It.
See Pages 72-73**

Hardware Requirements for Labeled Single Swinging Fire Doors

Label and Opening Class	Doors	h—MAXIMUM SIZE AND AREA OF OPENINGS			
		Width 6' Height 12'	Width 4' Height 12'	Width 4' Height 10'	Width 4' Height 8'
		HARDWARE	HARDWARE	HARDWARE	HARDWARE
"Fire Wall" for Class A Openings	347-1347 446-3 647	1406 406-3 2406			
"Vertical Shaft" for Class B Openings	347-1347 446-3 647 446-2 1647	b 1406 b 406-3 b 2406			b 406-2 c-d-e 1647
"Corridor or Room Partition" for Class C Openings	347-1347 446-3 647 446-2 1647	b 1406 b 406-3 b 2406			b 406-2 c-d-e 1647
"Exterior Wall" for Classes D-E-F Openings	347-1347 446-3 647 446-2 1647	a 1406 a 406-3 a 2406			a 406-2 a-d-e 1647
"Fire Escape" for Classes D-E-F Openings	347-1347 446-3 647 446-2 1647		a-f-g 1406 a-f-g 406-3 a-f-g 2406		a-f-g 406-2 a-d-f-g 1647
"Fire Shutter" for Exterior Windows	347-1347 446-3 647 446-2	1307 307-3 2307			307-2

- a—Automatic closing devices are generally not required on exterior or fire escape openings. If required, door closers are preferable.
- b—Door closers may be used instead of standard automatic closing devices, if desired.
- c—Door closers should be used with this hardware on vertical shaft and corridor or room partition doors.
- d—Hinges may be butts, half surface or full surface hinges not less than 4" high and not less than .134" (10 ga.) thick or R-W Nos. 1035BB and 1036BB not less than 12" long. One hinge must be furnished for each 30" of door height or fraction thereof. Doors must be reinforced for all hinges except R-W Nos. 1035BB and 1036BB which are attached with shoulder bolts.
- e—Doors must be fitted with one latch or lock, mortised or rim type of any make provided the latch bolt has a 3/4" throw. Dead bolts not acceptable.
- f—Any make of surface type panic bolt may be substituted provided the latch has a 3/4" throw. No other locks or latches required.
- g—Omit regular latches and locking bolts; substitute No. 144 panic bolt. (See page 74.)
- h—Hardware for oversize openings where permitted is the same as listed below.



**Yes We Make
One of the Finest
Panic Bolts . . . For Single
or Double Door Openings
See Pages 74-75**

Hardware Requirements for Labeled Sliding Fire Doors in Pairs

Label and Opening Class	Doors	a—MAXIMUM AREA AND SIZE OF OPENING		
		AREA 120'—WIDTH 12'—HEIGHT 12'		
		HARDWARE		
		Inclined Top 2 Link	Level Top— 2 Link Standard Headroom	Level Top 1 Link
"Fire Wall" for Class A Opening.....	647 347-1347	2352 1204	2354	 1302
"Vertical Shaft" for Class B Opening.....	647 347-1347	2352 1204	2354	 1302
"Corridor or Room Partition" for Class C Opening.....	647 347-1347	2352 1204	2354	 1302
"Exterior Wall" for Classes D-E-F Opening.....	647 347-1347	2352 1204	2354	 1302
"Fire Shutter" for Exterior Windows.....	647 347-1347	2352 1204	2354	 1302

a—Hardware for oversize openings where permitted is the same as listed below.



**Be Sure
and See the
Motorized Fire
Door Section
Pages 8-9**

How to Figure the Area of a Fire Door

The decimal equivalents of feet and inches given in table below apply to height as well as width. For instance, a door 4' 8" wide by 6' 3" high reduced in terms of decimal equivalents would be 4.667 by 6.250.

Flush Doors

Multiply width of opening in feet by height of opening in feet. A door 3' 6" (3.5) by 6' 8" (6.667) high would contain 23.33 sq. ft.

Square Top Lap Doors

Obtain actual size of door by adding 8 inches to width and 4 inches to height of opening, then multiply. For example: a square top lap door for opening 4' 0" wide by 6' 0" high would actually be 4' 8" (4.667) by 6' 4" (6.333) and would contain 29.56 sq. ft.

Incline Top Lap Doors

First, obtain width of door by adding 8 inches to width of opening, and obtain height of low side of door by adding 4 inches to height of opening, then multiply. To this result add the number of feet shown opposite the "Door Width" in third column of the table below. For example, an incline top lap door for opening 5' 0" wide by 6' 8" high is desired. Adding 8 inches to width of opening (5' 0") would be 5' 8". Adding 4 inches to height of opening (6' 8") for low side of door would be 7 ft. Multiplying 5' 8" (5.667) by 7 would give 39.669 sq. ft. to which must be added 2.007 (shown in third column opposite "Door Width," in this case 5' 8"), making a total of 41.676 sq. ft.

Computing the Area of Fire Doors

Door Width				Door Width				Door Width		
Feet Inches	Feet in Decimals	Add for Incline Top Square Feet		Feet Inches	Feet in Decimals	Add for Incline Top Square Feet		Feet Inches	Feet in Decimals	Add for Incline Top Square Feet
2- 0	2.000	.125		5- 9	5.750	2.066		9- 6	9.500	5.641
2- 1	2.083	.271		5-10	5.833	2.127		9- 7	9.583	5.740
2- 2	2.167	.293		5-11	5.917	2.188		9- 8	9.667	5.841
2- 3	2.250	.316		6- 0	6.000	2.250		9- 9	9.750	5.941
2- 4	2.333	.340		6- 1	6.083	2.313		9-10	9.833	6.043
2- 5	2.417	.365		6- 2	6.167	2.377		9-11	9.917	6.147
2- 6	2.500	.391		6- 3	6.250	2.441		10- 0	10.000	6.250
2- 7	2.583	.417		6- 4	6.333	2.507		10- 1	10.083	6.354
2- 8	2.667	.445		6- 5	6.417	2.573		10- 2	10.167	6.460
2- 9	2.750	.473		6- 6	6.500	2.641		10- 3	10.250	6.566
2-10	2.833	.502		6- 7	6.583	2.709		10- 4	10.333	6.673
2-11	2.917	.532		6- 8	6.667	2.778		10- 5	10.417	6.781
3- 0	3.000	.563		6- 9	6.750	2.848		10- 6	10.500	6.891
3- 1	3.083	.594		6-10	6.833	2.918		10- 7	10.583	7.000
3- 2	3.167	.627		6-11	6.917	2.990		10- 8	10.667	7.111
3- 3	3.250	.666		7- 0	7.000	3.063		10- 9	10.750	7.223
3- 4	3.333	.694		7- 1	7.083	3.136		10-10	10.833	7.335
3- 5	3.417	.729		7- 2	7.167	3.210		10-11	10.917	7.449
3- 6	3.500	.766		7- 3	7.250	3.285		11- 0	11.000	7.563
3- 7	3.583	.802		7- 4	7.333	3.361		11- 1	11.083	7.677
3- 8	3.667	.840		7- 5	7.417	3.438		11- 2	11.167	7.794
3- 9	3.750	.879		7- 6	7.500	3.516		11- 3	11.250	7.910
3-10	3.833	.918		7- 7	7.583	3.594		11- 4	11.333	8.028
3-11	3.917	.959		7- 8	7.667	3.674		11- 5	11.417	8.147
4- 0	4.000	1.000		7- 9	7.750	3.754		11- 6	11.500	8.266
4- 1	4.083	1.042		7-10	7.833	3.835		11- 7	11.583	8.386
4- 2	4.167	1.085		7-11	7.917	3.917		11- 8	11.667	8.507
4- 3	4.250	1.129		8- 0	8.000	4.000		11- 9	11.750	8.629
4- 4	4.333	1.174		8- 1	8.083	4.084		11-10	11.833	8.752
4- 5	4.417	1.219		8- 2	8.167	4.169		11-11	11.917	8.876
4- 6	4.500	1.266		8- 3	8.250	4.254		12- 0	12.000	9.000
4- 7	4.583	1.333		8- 4	8.333	4.340		12- 1	12.083	9.125
4- 8	4.667	1.361		8- 5	8.417	4.427		12- 2	12.167	9.252
4- 9	4.750	1.410		8- 6	8.500	4.516		12- 3	12.250	9.379
4-10	4.833	1.460		8- 7	8.583	4.604		12- 4	12.333	9.507
4-11	4.917	1.510		8- 8	8.667	4.695		12- 5	12.417	9.636
5- 0	5.000	1.563		8- 9	8.750	4.785		12- 6	12.500	9.766
5- 1	5.083	1.615		8-10	8.833	4.877		12- 7	12.583	9.896
5- 2	5.167	1.669		8-11	8.917	4.969		12- 8	12.667	10.028
5- 3	5.250	1.723		9- 0	9.000	5.063		12- 9	12.750	10.160
5- 4	5.333	1.778		9- 1	9.083	5.157		12-10	12.833	10.293
5- 5	5.417	1.834		9- 2	9.167	5.252		12-11	12.917	10.428
5- 6	5.500	1.891		9- 3	9.250	5.348		13- 0	13.000	10.563
5- 7	5.583	1.948		9- 4	9.333	5.444				
5- 8	5.667	2.007		9- 5	9.417	5.542				

MOTORIZED

Fire Doors and Hardware

"USE YOUR FIRE DOOR AS A PRODUCTION DOOR"

R-W Saves Precious Time in Closing Your Fire Doors Automatically

Richards-Wilcox offers a complete line of TOP-QUALITY, HEAVY DUTY Electric Door Operators designed and engineered to meet your exact requirements. Like magic, R-W Operators will open and close Swinging . . . Sliding . . . Vertical Lift Doors. Richards-Wilcox also features a complete line of standard control systems and equipment which can be adapted to give you custom door control.

R-W Electric Operators have attained universal acceptance and have established a prestige over 40 years that challenges comparison. The facilities of our trained sales engineers and engineering experience are at your command. Please contact our nearest representative or home office for additional information.

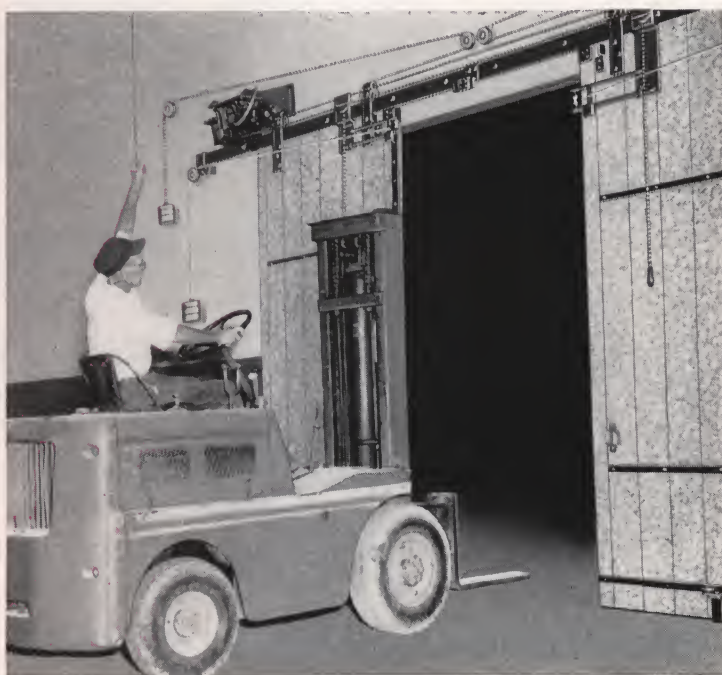
Motorize Your Door for Greater Savings in:

- Employee Protection
- Man Hours
- Plant Operation Cost
- Plant Protection
- Fuel Consumption
- Conditioned Air

IMPROVE MATERIALS HANDLING AND SPEED UP PRODUCTION TRAFFIC

R-W Electric "AUT-O-DOR" Operators will help to speed-up plant traffic, smooth traffic flow and eliminate confusion. Swinging, sliding and vertical lift doors can easily be adapted to open and shut automatically, safely and smoothly. Motorized-truck and hand-truck drivers can open and shut doors without the loss of time involved in stopping and starting to open doors and stopping again to close them. R-W Electric "AUT-O-DOR" Operators will save you time, effort and money.

TIME! IS PRECIOUS



For Full Information Send for Free Catalogs

only

Richards-Wilcox



OFFERS YOU

THE MOST COMPREHENSIVE

LINE OF FIRE DOOR

AND HARDWARE MADE

• **FINE FIRE DOORS**

Richards-Wilcox has for many years been the maker of quality fire doors, and fire door hardware.

No. 647 (All Steel) "FyeR-Ward" Door
1-13/16" thick.

No. 446-3 (Wood Core) Tin Clad Door
2-7/16" thick.

No. 347 (Sheet Metal) Corrugated Door
2-1/2" thick.

The No. 647 "FyeR-Ward" Flat surface door is made with an R-W interlocking panel design. The "FyeR-Ward" is a beautiful, economical door and is acceptable for any location whether for office or plant.

R-W Fire Door equipment has saved millions of dollars in actual recorded instances, in buildings protected and businesses preserved.

This reflects 75 years of experience in design and manufacturing of:

- **R-W FIRE DOORS**
- **R-W FUSIBLE LINKS**
- **R-W FIRE DOOR HARDWARE**

**A NEW CONTROL FEATURE
ADDED TO R-W MOTORIZED DOOR
UNITS, CAN NOW CLOSE YOUR
DOORS BY ANY SUDDEN
TEMPERATURE RISE.**



Yes . . . and R-W does this with the Advanced Fire Detector units.

A new feature added to the R-W Electric Operators and fire doors provides you with the most advanced fire protection ever offered. The small streamlined detector units are mounted on the ceilings or on the walls near the ceiling in the rooms on each side of the door. Each detector covers an area of 900 sq. ft. These detectors prevent any "Sneak Flames" from going to the other side of the wall.

Send for Information Explaining
all of the details.



Fig. 1 — Inclined Track
Left Hand — Single Sliding No. 647 Door



Fig. 2 — Inclined Track
Double Sliding No. 347 Door

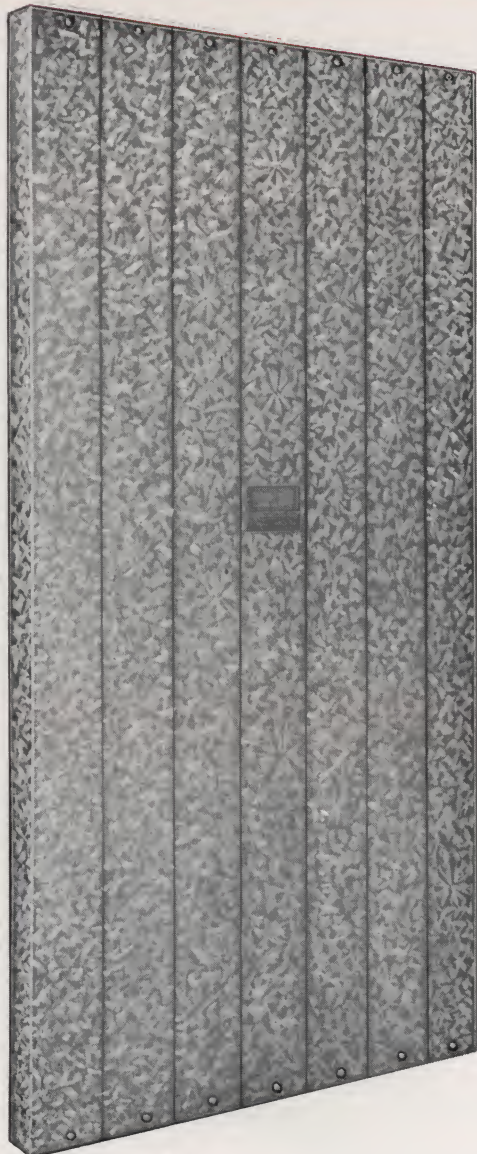
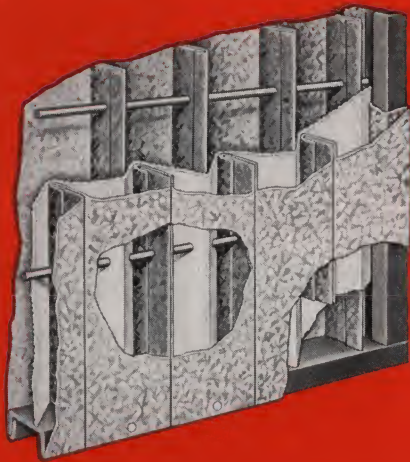


Fig. 3 — Level Track
Left Hand — Single Sliding No. 647 Door



Fig. 4 — Level Track — Double Sliding No. 647 Door

R-W No. 647 "FyeR-Ward"[®]



Inspected by the Underwriters' Laboratories, Inc.
Sponsored by the National Board of Fire
Underwriters. Also Approved by Factory
Mutual Laboratories.

- **USE**

For locations where appearance is of some importance. Suitable for class A, B, C, D, E, or F openings. See pages 2-3.

- **CONSTRUCTION**

The door is constructed of steel panels extending the full height of the door. The door panels are channel shaped interlocking members, with the legs of the channels forming the panels on each side of the door through the full height of the door. The flanges extend through the full thickness of the door, serving as stiffening reinforcements. Steel rods extend through the door horizontally through holes in the flanges of the channels, serving to unite the two sides into a rigid construction. Heavy steel channels are assembled to the four edges of the door to complete the structure. A sheet of corrugated asbestos is installed between the metal sheets forming the two sides of the door, being interwoven to pass around the flanges of the channel shaped members forming the face of the door. This provides not only the insulating qualities of the asbestos, but also forms two air spaces inside the door. The galvanized steel forming the outside face of the door is 22 gauge.

FyeR-Ward doors are 1-13/16" thick but carry the same credits for insurance rates as 3-ply tin clad doors.

- **SASH**

For standard sash for fire doors, see page 16.

- **WEIGHT**

Per square foot, 5 lbs.

Outstanding Features

- **A Flat Surface All Steel Fire Door.**
- **A Very Attractive Door 1-13/16" Thick That Carries the Insurance Rating of a 3-ply Tin Clad Door.**
- **Can be finished to represent a Slab Type Installation or can be grained to resemble a wood door.**

Fire Doors

• OVERSIZE DOORS

Doors exceeding the size limits established by the Underwriters' Laboratories for standard fire protection cannot be labeled.

However, in such cases, we can furnish a certificate which certifies that except for the size, the doors are manufactured to the requirements for doors of this class and type. This certificate cannot be issued unless the doors have first been inspected by an Underwriters' representative in our plant — this information must be stated on the order when it is received.

• LABELED DOORS

The regular size of doors to which we can apply labels are:
Single sliding doors for openings up to 120 square feet with neither dimension exceeding 12' 0" (on sliding doors we must attach the rear binder pocket to the door before we are permitted to attach label).

Swinging doors in pairs for openings not exceeding 12' 0" in height or 10' 0" in width.

Single swing doors for openings not exceeding 12' 0" in height and 6' 0" in width.

Vertical doors for openings not exceeding 80 square feet with neither height nor width exceeding 10'.

• RATINGS AND TEMPERATURE RISE

See pages 2-3 for complete data.

• NOTCHED AND RABBETED DOORS

Doors that are either notched or rabbeted are not standard, and cannot bear the Underwriters' label.

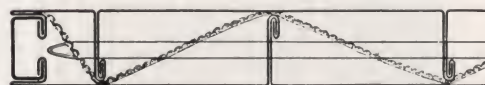
Certificates of inspection indicating that the doors are otherwise built according to standard details, can be furnished for notched doors if requested when order is sent in.

If doors are mortised or otherwise prepared for hardware other than standard fire door hardware, they can only be labeled providing ALL of the standard labeled hardware is also applied to the doors.

Where fire resisting doors are demanded but a label not required, "FyeR-Ward" doors may be hung on standard hardware, the same as wood doors. In this case the doors are reinforced for hinges, locks, door closers, surface or flush bolts, or any other hardware.

• DIRECTIONS FOR ORDERING DOORS

Provide information requested on page 15.



The photo above shows from a top view how this highly engineered door is constructed.

- The door panels interlock and form the edges of the door.
- The steel rods extend through the door horizontally.
- The corrugated asbestos is installed between the metal sheets . . . interwoven to pass around the flanges of the channel shaped members.

R-W No. 347 "FyeR-Wall"



Inspected by the Underwriters' Laboratories, Inc.
Sponsored by The National Board of Fire
Underwriters. Also Approved by Factory
Mutual Laboratories.

R-W 347 and 1347 Two Fine Doors

• USE

For locations where the door will be subject to rough usage and where the door would be subject to conditions which might induce dry rot in a tin clad door. Suitable for Class A, B, C, etc., (See pages 2-3).

• CONSTRUCTION

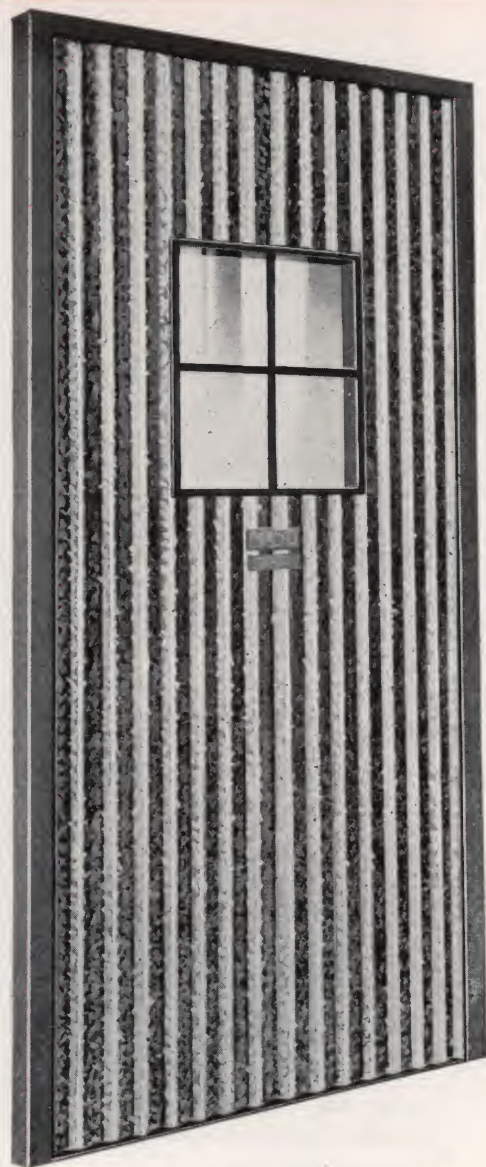
Numbers 347 and 1347 doors consist of two thicknesses of No. 24 gauge galvanized corrugated sheet steel with a layer of sheet asbestos in between. Corrugations on the wall side are horizontal and on the exposed side are vertical.

The vertical outside frame members of the door consist of a heavy exposed rolled steel angle as a frame work. The edge of the corrugated sheet on the exposed side of the door is formed around the inside of the angle. The bottom horizontal member is a heavy tee bar having the corrugated sheets fitted over the stem of the tee bar in such a manner that no pockets are formed at the bottom of the door which would collect dirt and which would allow water to pass through the door at those places. The horizontal and vertical members of the frame are securely welded together making a door of unusual ruggedness and rigidity.

Catalog Number	Thickness of Door	Thickness of Asbestos	Fire Test "Hours"
347	2-1/2"	1/16"	3
1347	2-1/2"	3/8"	3

Outstanding Features

- HEAVY STEEL ANGLE AT EDGE OF DOOR PROTECTS AND KEEPS MAINTENANCE DOWN TO A MINIMUM.
- DESIGNED ESPECIALLY TO MEET THE RUGGED DEMANDS OF HARD, CONSTANT, INDUSTRIAL USE.
- SPECIFICALLY DESIGNED FOR AREAS THAT COULD INDUCE DRY ROT.



Corrugated Fire Doors

- **SASH**

For standard sash, see page 16.

- **WEIGHT**

Per square foot, about 5 lbs.

- **LABELED DOORS**

Doors for openings not exceeding the following dimensions are furnished with labels of the Underwriters' Laboratories. When so required doors can be furnished with labels of the Factory Mutual Laboratories.

Single Sliding Doors for openings up to 120 square feet with neither dimension exceeding 12' 0" (on sliding doors we must attach the rear binder pocket to the door before we are permitted to attach label).

Single Swing Doors for openings not exceeding 12' 0" in height and 6' 0" in width.

Swinging Doors in Pairs for openings not exceeding 12' 0" in height or 10' 0" in width.

Vertical Doors for openings not exceeding 80 square feet with neither height nor width exceeding 10'.

- **RATINGS AND TEMPERATURE RISE**

See pages 2-3 for complete data.

- **"OVERSIZE" DOORS**

Doors exceeding the size limits established by the Underwriters' Laboratories for standard fire protection cannot be labeled.

However, in such cases, we can furnish a certificate which certifies that except for the size, the doors are manufactured to the requirements for doors of this class and type. This certificate cannot be issued unless the doors have first been inspected by an Underwriters' representative in our plant — this information must be stated on the order when it is received.

- **NOTCHED AND RABBETED DOORS**

Doors either notched, mortised, beveled or rabbeted are not standard and cannot bear the Underwriters' labels.

Certificates of inspection indicating that doors are otherwise built according to standard details can be furnished for notched doors if requested when order is sent in.

If doors are mortised or otherwise prepared for hardware they can only be labeled provided ALL of the standard labeled hardware is also applied to the doors.

- **DIRECTIONS FOR ORDERING**

See No. 446 Tin Clad Door, Page 15.



R-W No. 446 Tin Clad

Inspected by the Underwriters' Laboratories, Inc.,
Sponsored by The National Board of Fire
Underwriters. Also Approved by Factory
Mutual Laboratories.

- **USE**

For locations requiring an economical and serviceable door. Tin-clad doors on Class A opening must be 3-ply. (See Table on Pages 2-3.)

- **CONSTRUCTION**

2-ply (about 1-5/8") or 3-ply (about 2-7/16") thick doors available.

2-ply doors. Made of two layers of tongued and grooved lumber with one vertical and the other horizontal, fastened together with nails not over 8" apart, with double lock joints in the Terne Plate covering as required under the rules of the Underwriters' Laboratories.

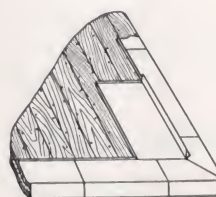
3-ply doors. Made of three layers of tongued and grooved lumber, the outside layers vertical, and the inner layer horizontal, fastened together and door Terne Plate covered in the same manner as 2-ply doors.

- **RATINGS AND TEMPERATURE RISE**

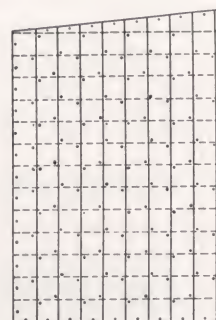
See pages 2-3 for complete data.



Showing
clinched nail
through core.



Showing tin applied to
edges of door and
first plates applied.



Showing nailing in
wood core.

- **SASH**

For standard sash, see Page 16.

- **WEIGHT**

Per square foot, 2-ply doors, 6 lbs.; 3-ply doors, 8 lbs.

Fire Doors

• LABELED DOORS

Standard doors with Underwriters' labels can be furnished for any size opening subject to the following limitations.

3-ply single sliding doors for openings 120 square feet in area, with maximum width or height not exceeding 12'.

3-ply swinging doors in pairs for openings, width not exceeding 10' and height not exceeding 12'.

3-ply single swinging doors for openings, width not to exceed 6' and height not to exceed 12'.

2-ply single sliding doors for openings not exceeding 32 square feet in area with neither height nor width exceeding 10'.

2-ply swinging doors in pairs for openings not exceeding 32 square feet in area with neither width nor height exceeding 10'.

2-ply single swinging doors for openings not exceeding 8' 0" in height or 4' in width.

2-ply vertical door for openings not exceeding 32' 0" square feet in area with neither width nor height exceeding 10' 0".

3-ply vertical doors for openings not exceeding 80 square feet in area with neither width nor height exceeding 10'.

Doors can be furnished with labels of the Factory Mutual Laboratories.

• DIRECTIONS FOR ORDERING ALL R-W FIRE DOORS

See pages 17-18-19.

State: First — Width and height of opening.

Second — Are doors to be square top or incline top? If incline top, state whether right or left hand. Doors which slide to the right when opening are right hand doors.

Third — State method of mounting doors; whether single sliding, sliding doors in pairs, single swing, swinging doors in pairs or vertical doors.

Fourth — State class of opening in building which doors protect — opening in fire wall, opening in vertical shaft, opening in corridor or room partition, opening to exterior fire escape or openings in exterior walls, see full description on page 2.

Openings to exterior fire escapes must have doors of the swinging type only.

Fifth — If glass panels are wanted, state number and size of panels. (See page 16).

Sixth — If doors are to be built in sections, it should be so stated. When ordering these doors, be sure to specify how we are to furnish them.

*A — Drilled for hardware.

*B — Doors only (hardware fitted by others).

C — When ordering No. 647 doors, state type of hardware to be used even though foreign . . . this is due to the special door preparation which must take

place at the factory at the time of door fabrication . . . send either templates or physical samples.

*For Nos. 347, 1347 or 446 doors only.

• NOTCHED OR RABBETED DOORS

Doors that are either notched, mortised, beveled or rabbeted are not standard and cannot bear the Underwriters' label. Certificates of inspection indicating that doors are otherwise built according to standard details, can be furnished for notched doors if requested when order is sent in. If doors are mortised or otherwise prepared for hardware other than standard fire door hardware, they can only be labeled provided that ALL of the standard labeled hardware is also applied to the doors.

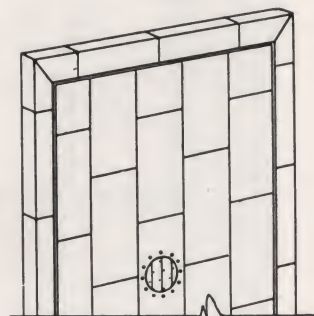
• OVERSIZED DOORS

Doors exceeding the size limits established by the Underwriters' Laboratories for standard fire protection cannot be labeled.

However, in such cases, we can furnish a certificate which certifies that except for the size, the doors are manufactured to the requirements for doors of this class and type. This certificate cannot be issued unless the doors have first been inspected by an Underwriters' representative in our plant — this information must be stated on the order when it is received.

• VENT HOLE REQUIREMENTS

Regulations of the National Board of Fire Underwriters and the Factory Mutual Engineering Division specify the provision of a vent hole in all Tin Clad fire doors and shutters. This must be done after the door is installed as it is impossible to determine the exposed side of the door during manufacture of the door.



The vent hole (not by R-W Co.) should be cut through one of the plates near the middle of the exposed side of the door or shutter. Use care so as not to injure the core when cutting the hole.

Area of Door

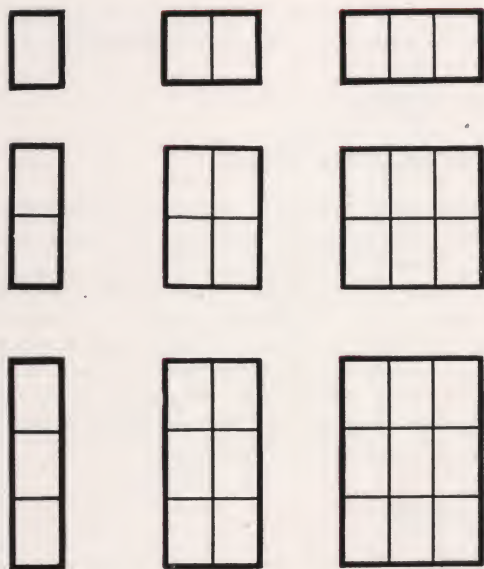
Not over 50 sq. ft.
Between 50 and 120 sq. ft.
Over 120 sq. ft.

Diameter of Vent Hole

3 inches
4 inches
6 inches

Secure the plate around the hole with nails spaced approximately one inch apart. Thoroughly paint the exposed wood.

Standard Sash for Fire Doors



Sash Combinations



• UNDERWRITERS' REQUIREMENTS

"Fire Wall" (Class A) openings.

Glass is not permitted in fire wall doors.

"Vertical Shaft" (Class B) openings.

A single vision panel not exceeding 100 square inches in area with neither width nor height exceeding 12" is permitted. (R-W Standard vision panels are 10" x 10").

"Corridor or Room Partition" (Class C) openings.

Single lights of glass not over 1296 square inches in area with neither width nor height exceeding 54" are permitted (R-W is standardizing on single lights of glass not over 400 square inches, therefore, each light of glass should be confined to our maximum standards. Sash with several lights of glass may be installed in each door).

"Exterior Wall" or "Fire Escape" (Class E or F) openings.

Glass should not be used in these openings subject to severe fire exposure but in situations subject to moderate fire exposure single lights of glass not over 720 square inches in area not more than 48" wide and not more than 54" high are permitted (R-W is standardizing on single lights of glass not over 400 square inches, therefore, each light of glass should be confined to our maximum standards. Sash with several lights of glass may be installed in each door).

• LOCATION OF SASH

Minimum distance from edge of door to sash openings or minimum distance between two sash openings (when steel muntin bars are not used) is 7".

• GLASS

All glass where permitted must be 1/4" rough or clear wired glass. (Glass not by R-W).

• STANDARD SASH

Standard sash combinations may be 1 light wide by 1, 2, or 3 lights high; 2 lights wide by 1, 2, or 3 lights high; or 3 lights wide by 1, 2, or 3 lights high.

Sash receives glass lights 8", 10", 12", 14", 16", 18", 20", and 24" wide by 8", 10", 12", 14", 16", 18", 20", and 24" high. In many cases especially in the case of swinging fire doors the size of the sash is limited by the hardware. Therefore we suggest that customers state approximate size of sash desired but permit us to furnish the size nearest to their request.

GLASS NOT INCLUDED

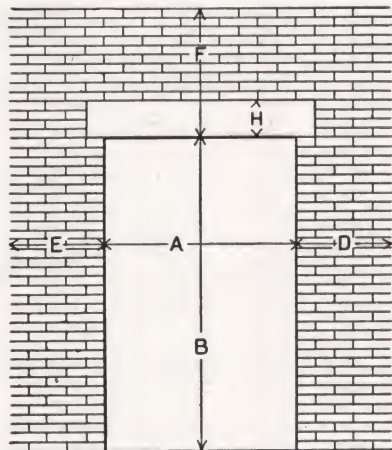
Prices of doors with sash do not include glass for the sash. Glazing must be done on the job by others.

Required Ordering Data

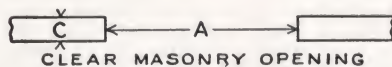
"Straight Sliding" Fire Doors

Give All Information Requested Below When Ordering

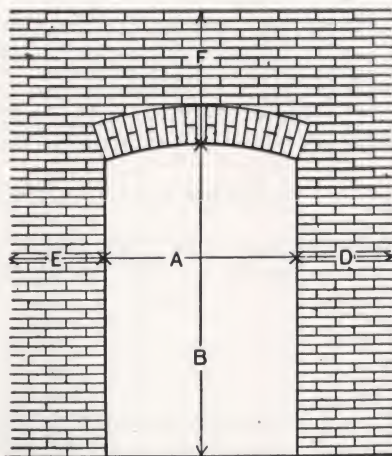
OPENINGS								DOORS							
HOW MANY?	"A"	"B"	"C"	"D"	"E"	"F"	"H"	HOW MANY?	2-Ply, 3-Ply, Tin Clad, "Fire-Wall" Sheet Metal Door or "Fire-Ward" Door	Doors on One or Both Sides of Wall	Incline or Level Top	Right or Left Hand, See Plans	Single or Pairs	Hardware—Specify by Number (Automatics Furnished Unless Otherwise Specified)	Class of Opening;
Square or Arch Top?	Width of Brick Opening	Height of Brick Opening at Center	Thickness of Wall	Unobstructed Wall Space to Right of Opening	Unobstructed Wall Space to Left of Opening	Unobstructed Space Above Top of Opening and in Space Door Moves to Open	Height of Material of Lintel								A. Fire Wall B. Vertical Shaft C. Corridor or Room Partition D. Exterior (Severe Exposure) E. Exterior (Moderate Exposure)



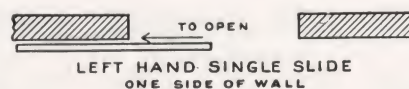
SQUARE TOP OPENING



CLEAR MASONRY OPENING



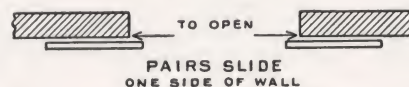
ARCH TOP OPENING



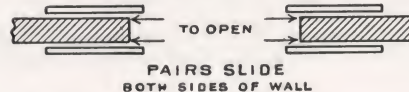
LEFT HAND SINGLE SLIDE
ONE SIDE OF WALL



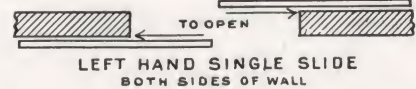
RIGHT HAND SINGLE SLIDE
ONE SIDE OF WALL



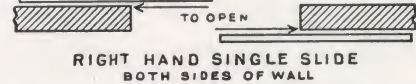
PAIRS SLIDE
ONE SIDE OF WALL



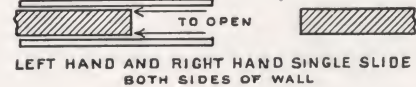
PAIRS SLIDE
BOTH SIDES OF WALL



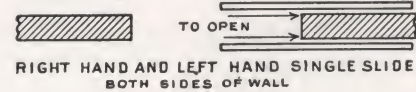
LEFT HAND SINGLE SLIDE
BOTH SIDES OF WALL



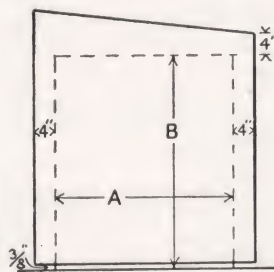
RIGHT HAND SINGLE SLIDE
BOTH SIDES OF WALL



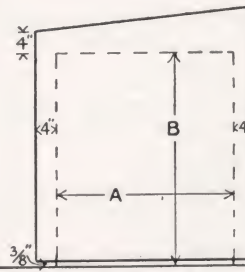
LEFT HAND AND RIGHT HAND SINGLE SLIDE
BOTH SIDES OF WALL



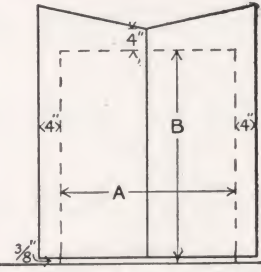
RIGHT HAND AND LEFT HAND SINGLE SLIDE
BOTH SIDES OF WALL



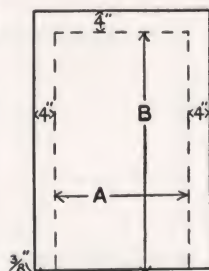
INCLINE TOP DOOR
LEFT HAND



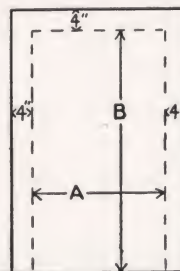
INCLINE TOP DOOR
RIGHT HAND



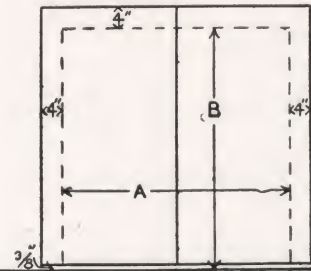
INCLINE TOP DOORS
PAIRS SLIDE



SQUARE TOP
SLIDE DOOR



SQUARE TOP
VERTICAL SLIDE



SQUARE TOP DOORS
PAIRS SLIDE

Required Ordering

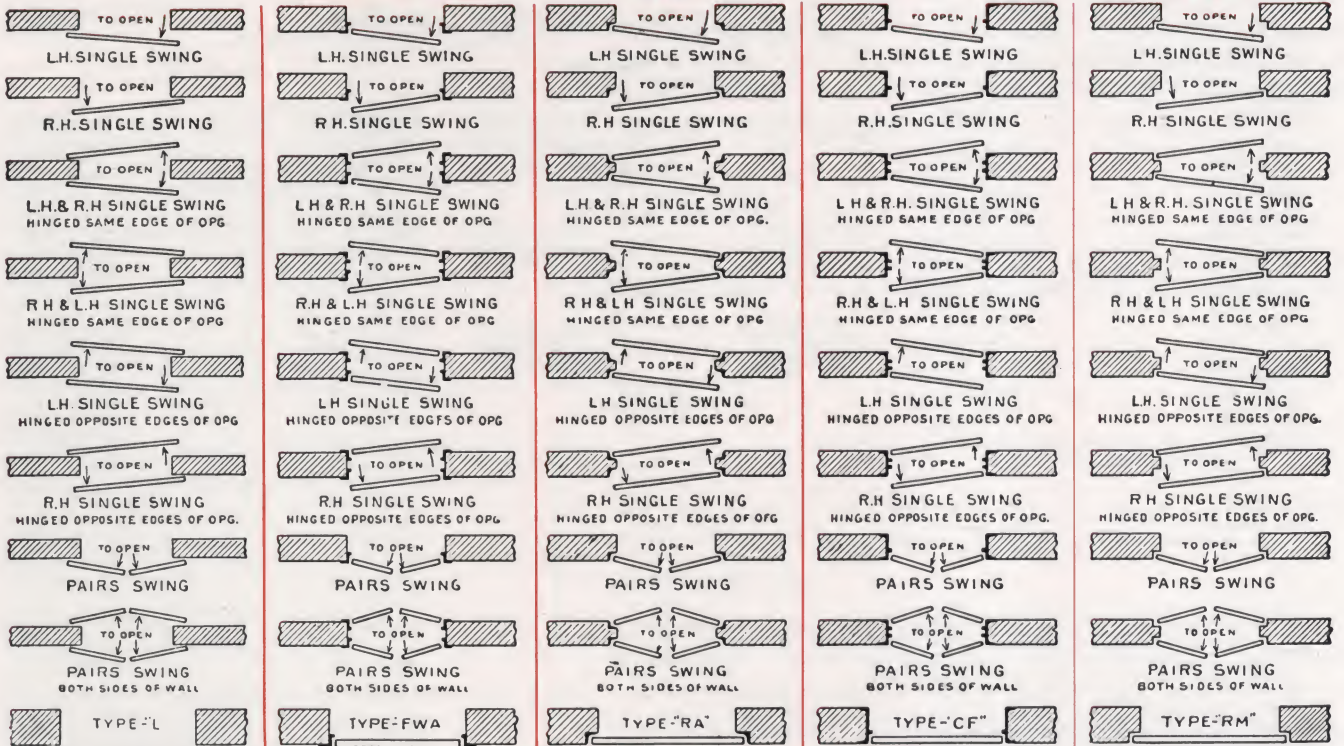
"Swinging" Fire Doors

Give All Information Requested Below When Ordering, Depending Upon Type of Opening

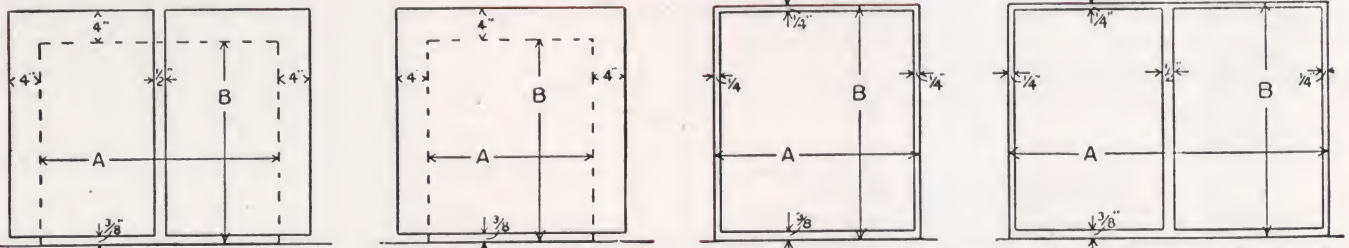
OPENINGS											DOORS				
HOW MANY?	"A"	"B"	"C"	"D"	"E"	"F"	"J"	"K"	"L"	"M"	HOW MANY?	Doors on One or Both Sides of Wall?	Flush or Overlap Specify Type Frame	Hinged Right or Left Hand?	Single or Pairs
	Square or Arch Top?	Width of Brick Opening	Height of Brick Opening	Thickness of Wall	Available Wall Space to Right of Opening	Available Wall Space to Left of Opening	Available Space Above Top of Opening	Door Opening Width in Frame	Door Opening Height in Frame	Net Brick Opening Width (Rabbeted Style)	Net Brick Opening Height (Rabbeted Style)				Hardware: Specify by Numbers (Automatics furnished unless otherwise specified).
															2-Ply 1-5/8" 3-Ply 2-7/16" Tin Clad or Fire-Wall 2-1/2" Sheet Metal

LAP TYPE DOORS FLUSH TYPE DOORS FLUSH TYPE DOORS FLUSH TYPE DOORS FLUSH TYPE DOORS

CLEAR MASONRY ANGLE IRON FRAME ON FACE OF WALL IN RABBETED ANGLE FRAME IN CHANNEL FRAME IN RABBETED MASONRY OPENING



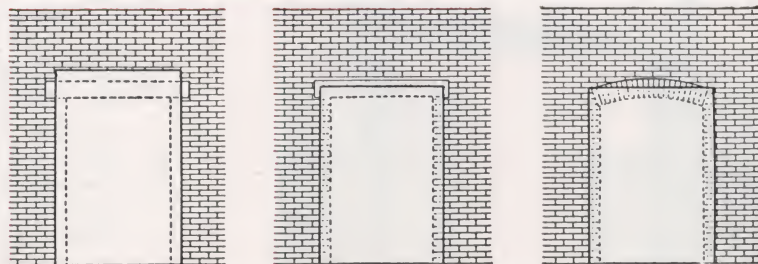
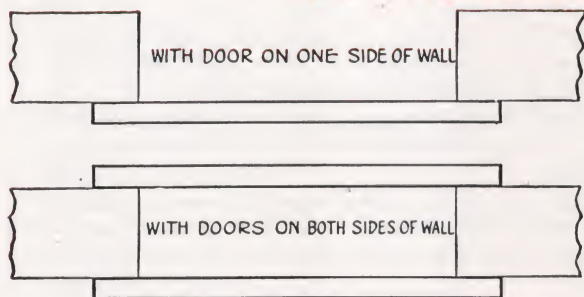
LAP AND CLEARANCES REQUIRED



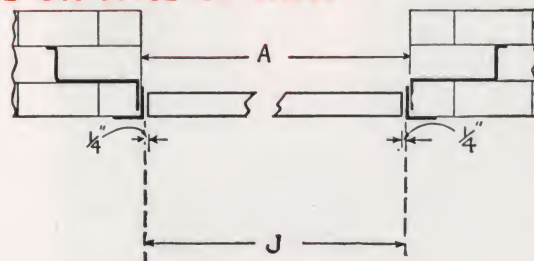
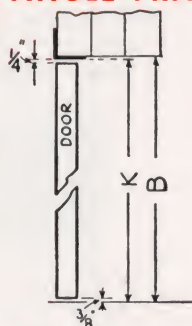
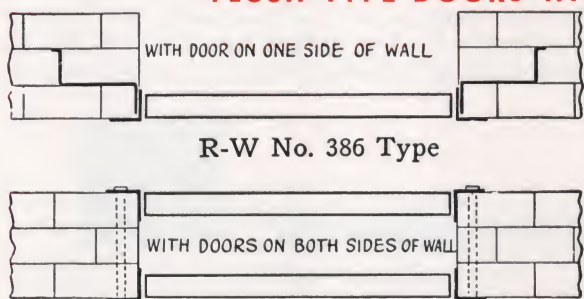
(Swinging) Data

"Swinging" Fire Doors

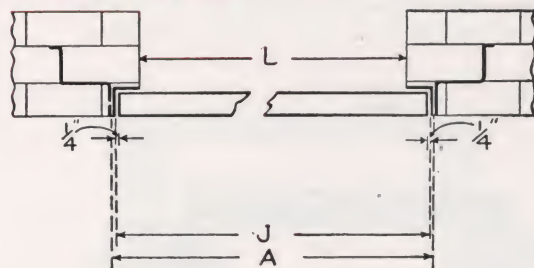
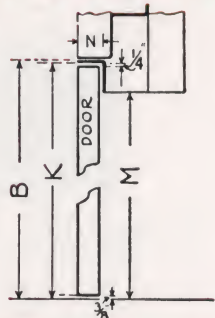
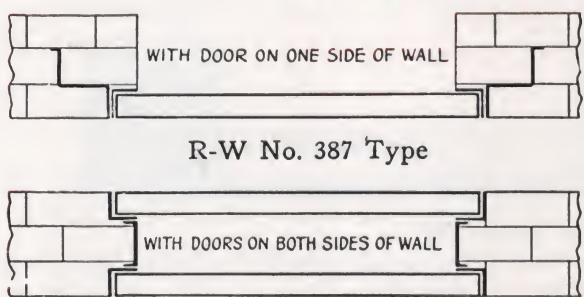
LAP TYPE DOORS IN CLEAR MASONRY OPENING



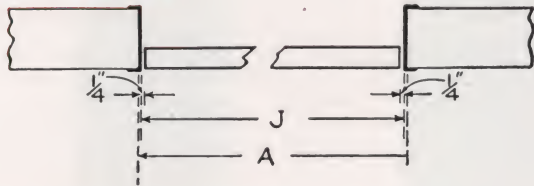
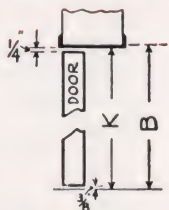
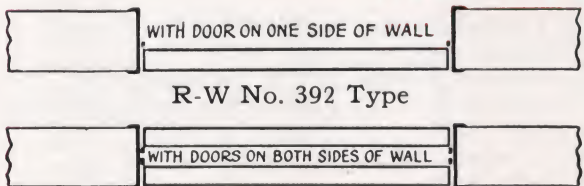
FLUSH TYPE DOORS WITH ANGLE FRAME ON FACE OF WALL



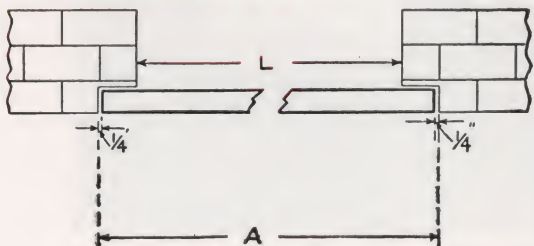
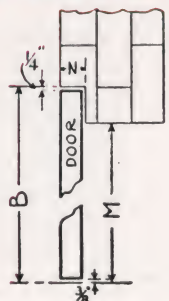
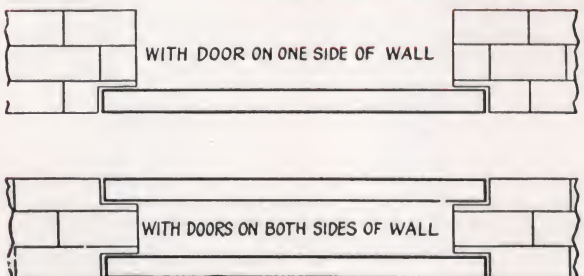
FLUSH TYPE DOORS IN RABBETED ANGLE FRAME



FLUSH TYPE DOORS IN CHANNEL FRAME

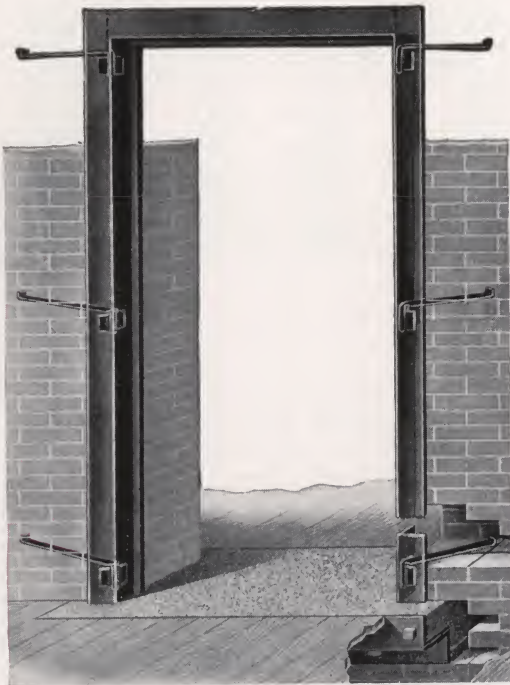


FLUSH TYPE DOORS IN RABBETED MASONRY OPENING



Angle Iron—

R-W Nos. 386 and 1386 Angle Iron Door Frames Do Not Bear An Underwriters' Label



No. 386 Angle Iron Frame for Attaching to Face of Wall with Regular Anchors



No. 1386 Angle Iron Frame for Attaching to Face of Wall with Clips and Bolts

• USE

No. 386 for attaching to face of wall with regular anchors; should be applied as the walls are being built, but may be used in old walls or after wall has been built.

No. 1386 for attaching to face of wall with clips and bolts; should be used only in old walls or after wall has been erected.

• INSPECTION DATA

Frames are built according to the standard as given in the Regulations of the National Board of Fire Underwriters' and recommended by the National Fire Protection Association.

• CONSTRUCTION

No. 386. Furnished with adjustable anchors as illustrated below when frame is used on one side of wall only or with thru bolts when frames are used on both sides of wall. The bottom end of frame extends into the concrete part of the sill 3", except when used with sill shown in Figure 2 at the bottom of page 28.



No. 1386. Furnished with clips as illustrated below. (Use No. 386 Frames in new walls). We will include necessary bolts if desired at a small additional cost if thickness of wall is given. The bottom end of frame extends into the concrete part of the sill 3", except when used with sill shown in Figure 2 at the bottom of page 28.



• DIRECTIONS FOR ORDERING

First — Send sketch with actual dimensions of opening in wall on old work already constructed. On new work state size of door required and frame will be built accordingly.

Second — State whether frame extends into concrete or rests on sill.

Third — Is frame to be used on one or both sides of wall?

Fourth — If for single or pairs of doors.

Fifth — On which side are hinge pintles to be attached and what type are to be used? If for single doors also state type of latch keeper to be used.

Sixth — Thickness of wall.

Seventh — Thickness of doors.

Note — For description of sills, see the bottom of page 28.

• SHIPPING WEIGHTS

Size of Door Openings	386-3 or 1386-3 for 3-Ply Tin Clad or "FyeR-Wall" Doors 3½" x 3½" x ¼" Angle	386-2 or 1386-2 for 2-Ply Tin Clad or No. 647 "FyeR-Ward" Doors 3" x 3" x ¼" Angle
3' wide x 7' high	125 lbs.	110 lbs.
4' wide x 7' high	131 lbs.	115 lbs.
5' wide x 7' high	137 lbs.	120 lbs.
6' wide x 7' high	143 lbs.	125 lbs.
7' wide x 7' high	149 lbs.	130 lbs.
8' wide x 7' high	155 lbs.	135 lbs.
9' wide x 7' high	161 lbs.	140 lbs.
10' wide x 7' high	167 lbs.	145 lbs.
For frames higher or lower than 7', add or deduct per foot of opening:		
	14 lbs.	12 lbs.

Note: When fixtures are ordered complete with frames, we attach pintles and keepers to the frame without extra charge.

Door Frames

R-W Nos. 387 and 1387 Angle Iron Door Frames Both these Frames Bear An Underwriters' Label

• USE

No. 387 rabbeted type for attaching to wall with regular anchors; best adapted for building into wall when wall is being erected.

No. 1387 rabbeted type for attaching to wall with clips and bolts; can be attached to an old wall easier than No. 387 as wall clips are furnished instead of anchors.

• INSPECTION DATA

Frames are built according to the standard as given in the Regulations of the National Board of Fire Underwriters' and recommended by the National Fire Protection Association.

• CONSTRUCTION

No. 387. Furnished with adjustable anchors as illustrated below, when frame is used on one side of wall only or with double ties when frames are used on both sides of wall. The bottom end of frame extends into the concrete part of the sill 3", except when used with sills shown in Figure 2 at the bottom of page 28.



No. 1387. Furnished with wall clips as illustrated below. We will include necessary bolts at a small additional cost if so advised and if thickness of wall is given. The bottom end of frame extends into the concrete part of the sill 3", except when used with sills shown in Figure 2 at the bottom of page 28.



• DIRECTIONS FOR ORDERING

First — Send sketch with actual dimensions of opening in wall (i. e. the space to be occupied by the frame) on old work already constructed. On new work state size of door required and frame will be built accordingly.

Second — State whether frame extends into concrete or rests on sill.

Third — Is frame to be used on one or both sides of wall?

Fourth — If for single or pairs of doors.

Fifth — On which side are hinge pintles to be attached and what type are to be used? If for single doors also state type of latch keeper to be used.

Sixth — Thickness of wall.

Seventh — Thickness of doors.

• SHIPPING WEIGHTS

Size of Door Openings	387-3 or 1387-3 for 3-Ply Tin Clad or "FyeR-Wall" Doors 3" x 3" x 1/4" Angle	387-2 or 1387-2 for 2-Ply Tin Clad or 647 "FyeR-Ward" Doors 2 1/2" x 2 1/2" x 1/4" Angle
3' wide x 7' high	110 lbs.	95 lbs.
4' wide x 7' high	115 lbs.	100 lbs.
5' wide x 7' high	120 lbs.	105 lbs.
6' wide x 7' high	125 lbs.	110 lbs.
7' wide x 7' high	130 lbs.	115 lbs.
8' wide x 7' high	135 lbs.	120 lbs.
9' wide x 7' high	140 lbs.	125 lbs.
10' wide x 7' high	145 lbs.	130 lbs.

For frames higher or lower than 7', add or deduct per foot of opening:

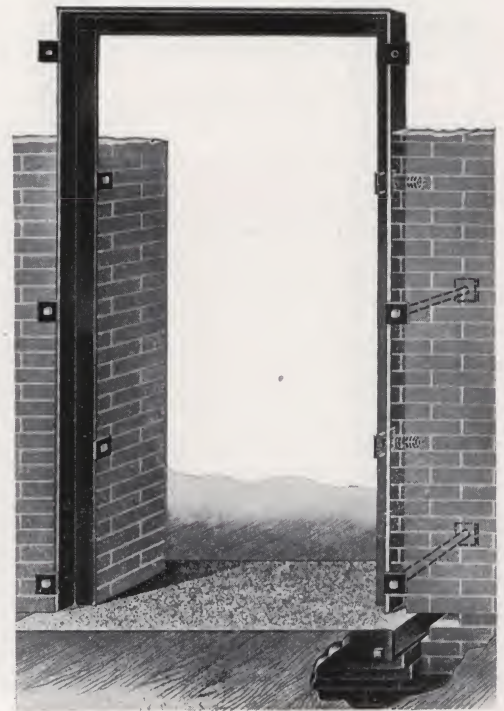
12 lbs.

10 lbs.

Note: When fixtures are ordered complete with frames, we attach pintles and keepers to the frame without extra charge.



No. 387 Rabbeted Type Angle Iron Frame
for Attaching to Face of Wall
with Regular Anchors



No. 1387 Rabbeted Type Angle Iron Frame
for Attaching to Wall with
Clips and Bolts

Labeled Channel Iron

R-W Nos. 392-3-4 Channel Door Frames

- **USE**

For use with tile or terra cotta walls and may be built from floor to ceiling when walls are not substantial enough to hold frames securely in place.

Preferably placed in new walls as walls are built.

- **LABELED FRAMES**

Labels can be supplied for frames for openings not exceeding 10' in width and 12' in height. The label serves as evidence of inspection at the factory by Underwriters' Laboratories, Inc., and signifies compliance with the requirements of the Laboratories as established by fire test. Labels on frames indicate that they have been constructed in accordance with Underwriters' Laboratories' requirements and do not indicate suitability of hardware.

- **THREE STYLES**

No. 392. Jambs extend into the masonry floor or wall not less than 3".

No. 393. Four sided frame with all steel sill made of same size channels as the frame. Generally used where threshold is raised above floor level.

No. 394. Jambs extend to floor only and are attached to floor by clip angles. Used when a partition wall is to be installed on a floor already in place.

- **CONSTRUCTION**

Channel sizes from 4" to 13", inclusive.

Width of channel is generally 1" greater than thickness of wall although wall can be thicker than width of channel. (See illustration).

Doors can be attached to one or both sides of frame as required.



R-W No. 392 Labeled Channel Door Frame.
Note Jambs Extend into Masonry Floor
Not Less Than 3"



R-W No. 393 Labeled Channel Door Frame.
Note Steel Sill Made Out of the Same Size
Channels as the Frame, Included
as Part of Frame

Door Frames

• DIRECTIONS FOR ORDERING

First — Send sketch with actual dimensions of opening in wall and state whether wall is already in place or whether frame is to be set in new wall construction. On new work state size of door required and frame will be built accordingly.

Second — State whether frame extends into concrete or rests on sill.

Third — Will doors be used on one or more sides of wall?

Fourth — If for single or pairs of doors.

Fifth — On which side are hinge pintles to be attached and what types are to be used? If for single doors, also state type of latch keeper to be used.

Sixth — Give size of channel or thickness of wall.

Seventh — Thickness of doors.



With Door on One Side of Wall



Wall of Greater Thickness than Channel



With Doors on Both Sides of Wall



R-W No. 394 Labeled Channel Door Frame.
Note Jamb's Extend to Floor Only and Are Attached There by Clip Angles

Weight Table of Nos. 392, *393 and 394 Approved Channel Iron Door Frames

Size of Door Openings	4" Channels	5" Channels	6" Channels	7" Channels	8" Channels	9" Channels	10" Channels	12" Channels	13" Channels
	Weight lbs.	Weight lbs.	Weight lbs.	Weight lbs.	Weight lbs.	Weight lbs.	Weight lbs.	Weight lbs.	Weight lbs.
3' wide x 7' in height.....	143	166	192	222	248	286	323	420	631
4' wide x 7' in height.....	150	175	202	234	261	302	340	442	665
5' wide x 7' in height.....	157	183	212	245	274	317	357	465	699
6' wide x 7' in height.....	164	192	223	257	287	332	375	487	733
7' wide x 7' in height.....	171	200	233	269	300	347	392	510	767
8' wide x 7' in height.....	179	209	243	280	314	363	409	533	800
9' wide x 7' in height.....	187	218	254	292	328	381	426	555	834
10' wide x 7' in height.....	195	227	265	305	342	400	444	578	868
For frames higher or lower than 7', add or deduct per foot of opening.....	15	17	20	23	26	30	35	45	68
*For 393 Frames, add to above weights for each foot of opening width.....	5½	6¾	8¼	9¾	11½	13½	15¼	20¾	32

Protection of Openings in

Continued Also on Next 3 Pages

The "Regulations of the National Board of Fire Underwriters for The Protection of Openings in Walls and Partitions Against Fire" are based upon fire walls of brick and reinforced concrete construction as described in the "Building Code" recommended by the National Board of Fire Underwriters.

The term "hollow block," as used, refers to 8" hollow building units (burnt claytile, concrete blocks, concrete tile, etc.) having a gross cubical content exceeding 150 per cent of the standard size of burned clay brick and in which cellular spaces exceed 25 per cent of the gross cubical contents. The term "hollow block" does not include gypsum blocks of any kind. Walls constructed from gypsum blocks are not acceptable for fire division walls.

Filling the cellular spaces of hollow blocks with mortar or concrete is not acceptable because of the impracticability of obtaining a complete and uniform fill of the hollow spaces and an adequate bond of the blocks; consequently, such a method is not considered as the equivalent of solid masonry.

Experience has shown that fire door hardware installed on walls of hollow block construction will work loose, because the walls of the block crush under pressure, caused by the tightening of the bolts and the normal use of the door. For these reasons openings in hollow block walls require special treatment for the installation of fire doors and their hardware. **Requirements for this condition vary and the local authorities should be consulted in each case.** In general, one or more of the following methods are acceptable.

METHOD No. 1, FIGURE 1

The method shown in Figure 1, is usually preferred because it requires less material and maintenance. In preparing the opening in hollow block walls as shown in Figure 1, it is necessary to bond the brick into the wall. The location of the track, binder, stay roll, and bolts must conform to the rules in NBFU Pamphlet No. 80.

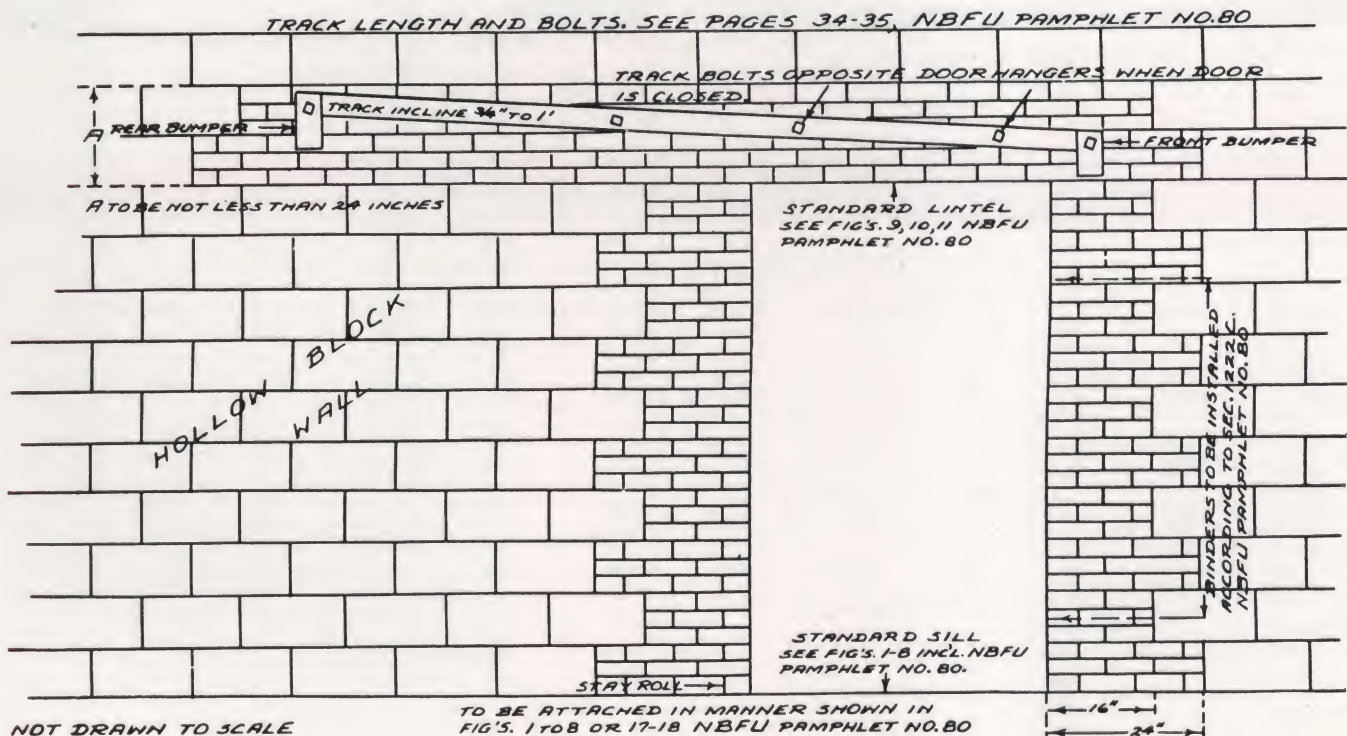


Figure 1

Hollow Block Fire Walls

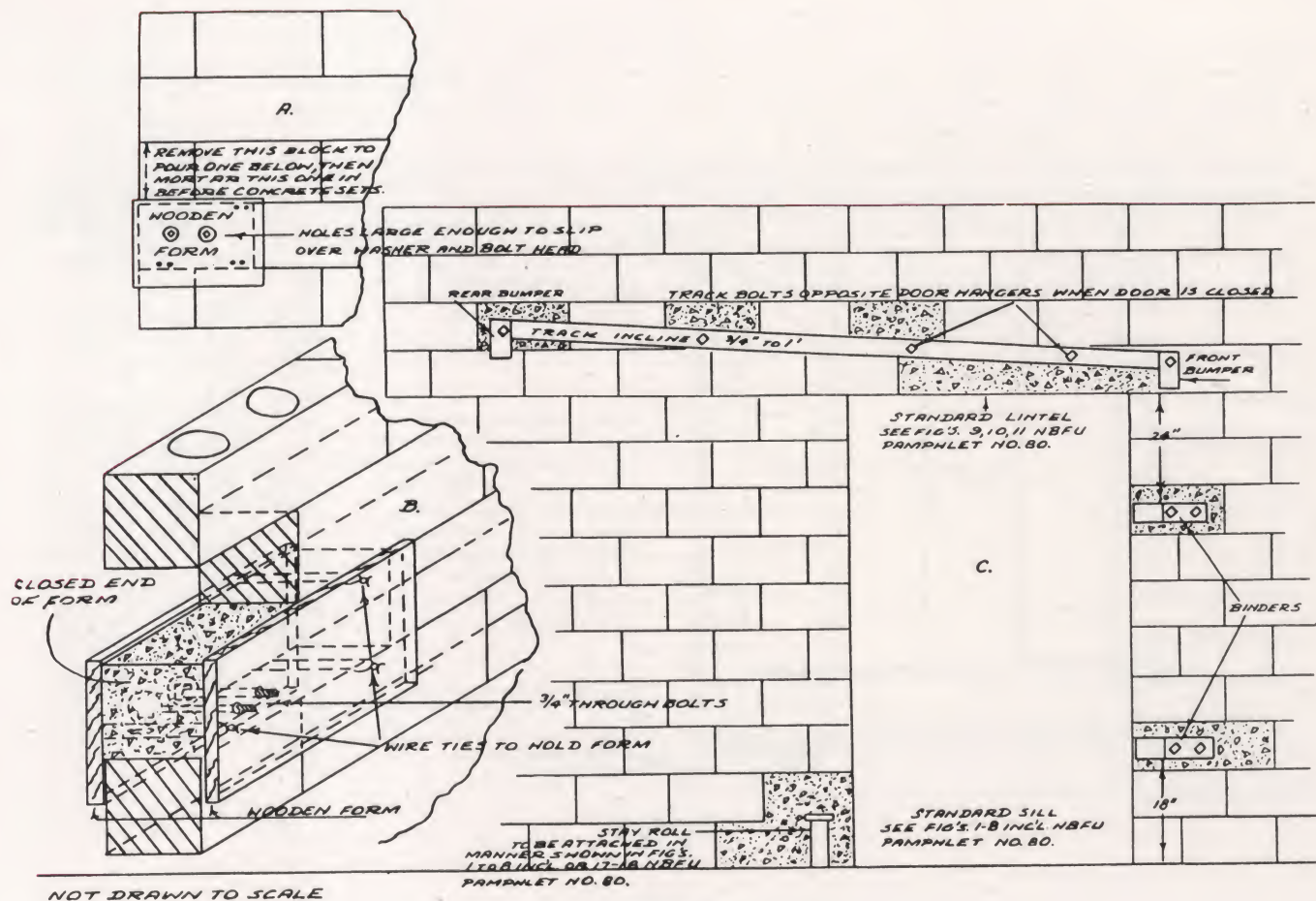


Figure 2

METHOD No. 2, FIGURE 2

This method uses poured concrete which is substituted for hollow blocks at points where bolts are to be installed. Such concrete shall be properly keyed and bonded to the wall. In order to obtain an adequate bond between the poured concrete and the hollow block, a sufficient amount of concrete should be permitted to enter the open spaces in the blocks in order to form a substantial key. Bolts should be cast in place with the poured concrete and not installed afterwards or pipe sleeves in Figure 4. Detail B and D could be cast in place. If pipe sleeves are used, the holes shown in Figure 2, Detail A, need be only the size of the 3/4" through bolt and the bolts can be used to hold the wooden form in place.

Detail A shows location of one side of the wooden form, the holes in this portion being large enough to slip over the bolt washers and thereby permit the removal of the form after the concrete has set. The other side of the wooden form is slipped over the threaded ends of the bolts and can be partially held in place by the nuts so that it can be easily removed after the concrete sets. Detail B is a sectional view showing method of securing wooden form and bolts preparatory to filling with concrete. Detail C shows standard hardware in the approximate position for an inclined gravity sliding fire door.

Protection of Openings in

(Continued)

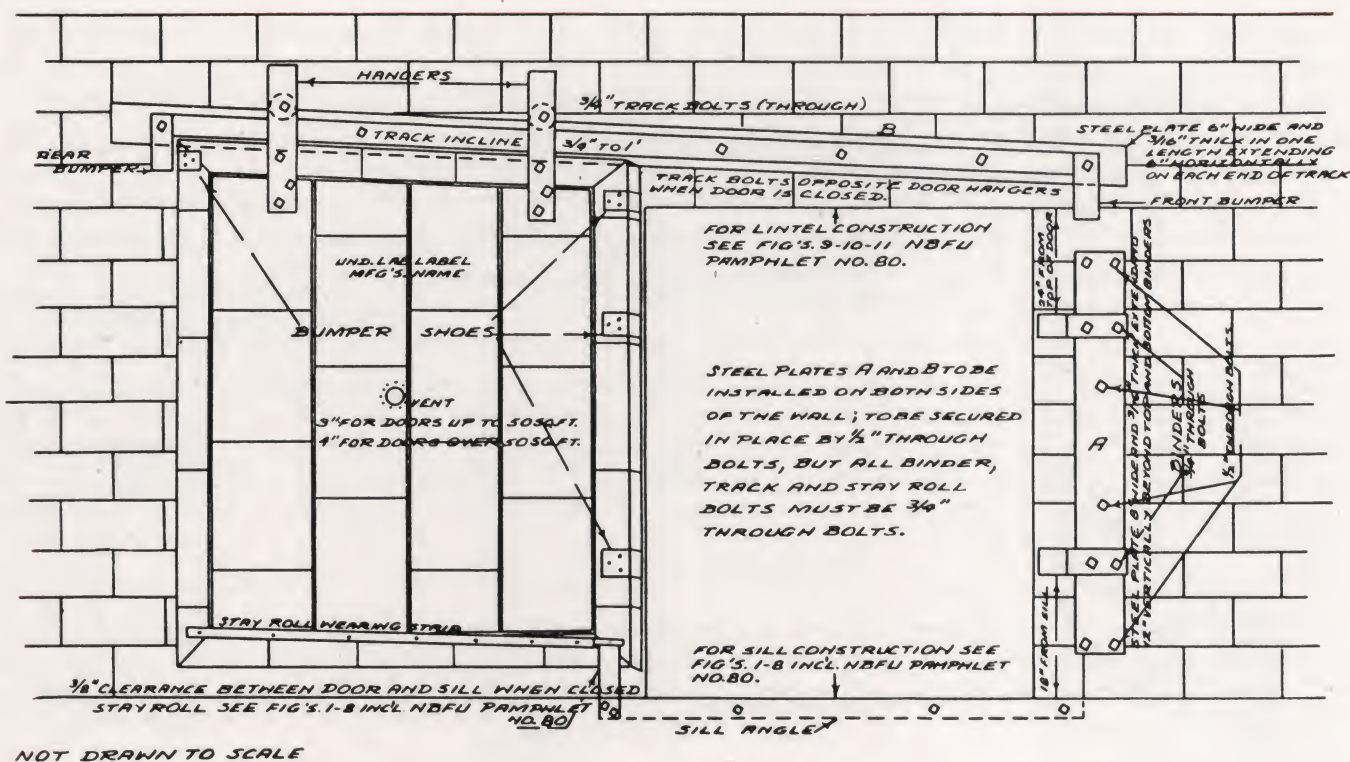


Figure 3

METHOD No. 3, FIGURE 3

This method employs the use of steel plates on both sides of the wall, properly bolted together by means of 3/4" diameter through bolts for securing the hardware and 1/2" diameter through bolts which are supplementary to prevent the plates from bulging. Plates should be located as shown. All other details should be followed.

Install pipe bushing shown in Figure 4, Details B and D, for each binder and track bolt.

METHOD No. 4, FIGURE 4

The alternate method shown in Figure 4, on the following page, employs the use of channel shaped steel pieces or clamps to be bolted together and in place, as shown. Method of application is shown in Details A, B, C and D.

Details B and D show pipe bushings the length of which should be the same measurement as the thickness of the wall (scant). The measurement X in Detail C should be determined by the location of the hardware bolt holes, which in no case shall be less than 1-1/2" from any of the four sides of the plate. All bolts should be 3/4" in diameter and pass through the wall; care should be taken to see that bolt holes in the blocks are clean cut and that the blocks are not shattered.

Hollow Block Fire Walls

(Continued)

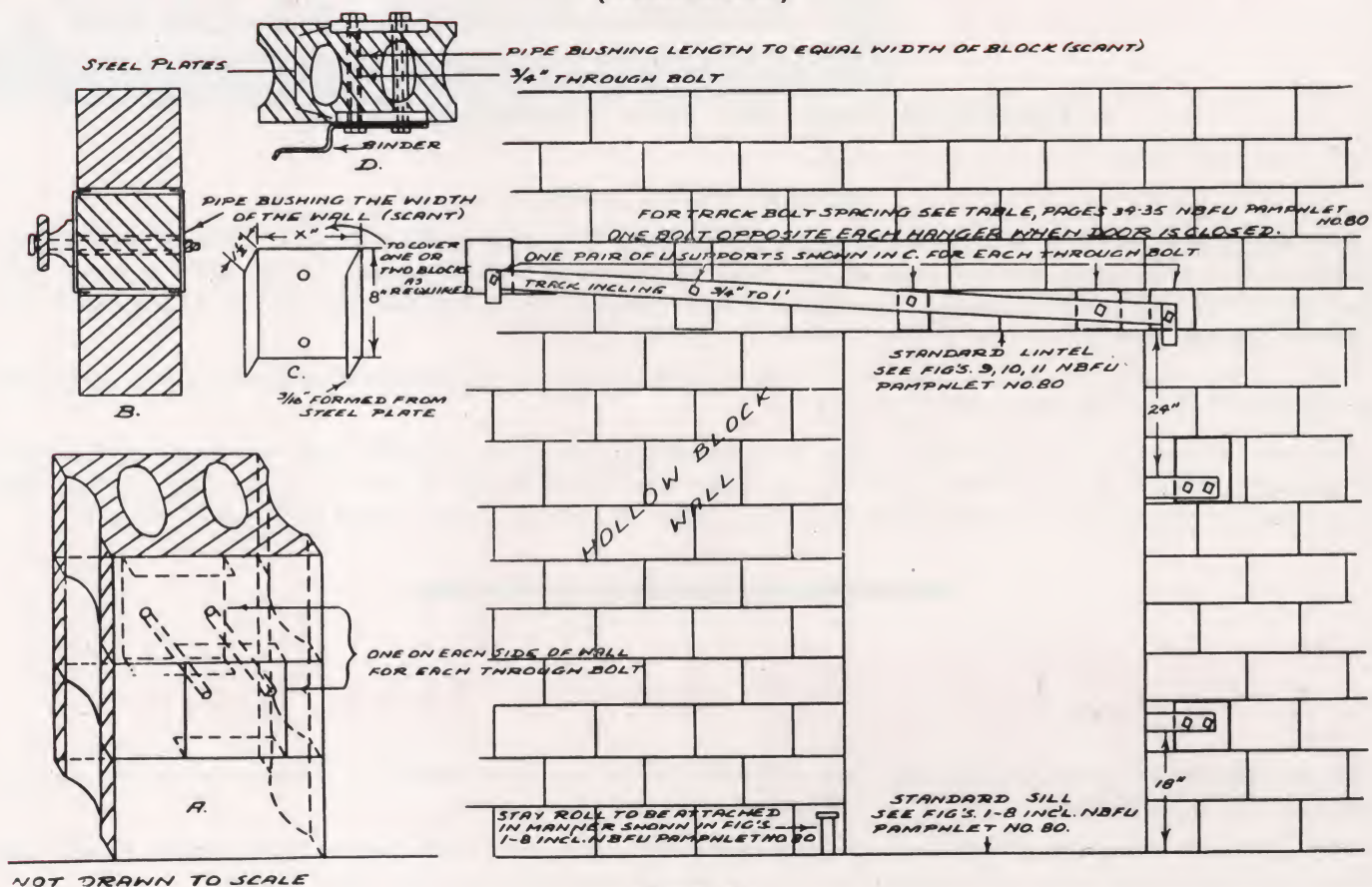


Figure 4

FOR LINTEL CONSTRUCTION SEE SECTION 1107, FIGS. 9 TO 11. NBFU PAMPHLET NO. 80.

THIS CHANNEL NOT TO SERVE AS LINTEL

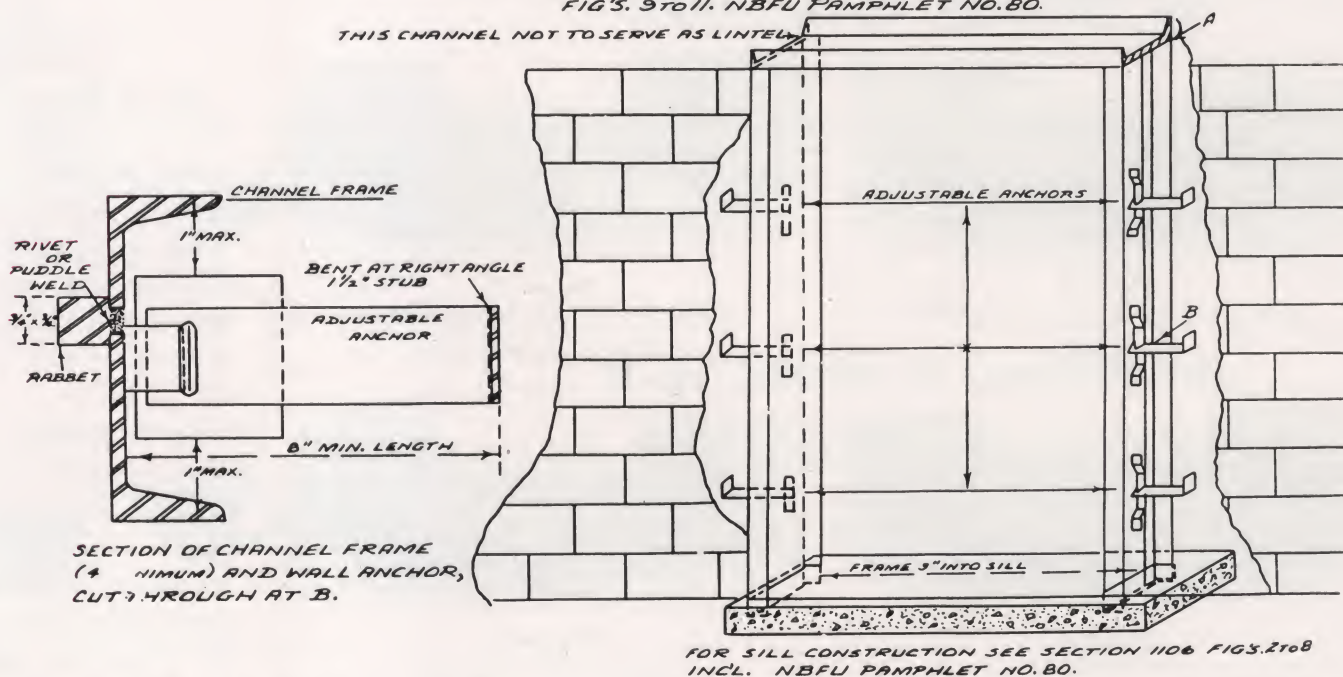


Figure 5

Protection of Openings in Hollow Block Fire Walls

(Continued from the Four Preceding Pages)

SWINGING DOORS, FIGURE 5

The construction shown on the preceding page is adaptable to swinging doors hung in channel steel frames. Frames of this construction can be used in any type of approved masonry wall. Swing doors require more clear space than sliding doors, but they are often useful in location where the openings are used by persons as a means of ingress or egress from one fire division to another.

The wall frame shown in Figure 5 for swing doors (either single or in pairs) should be constructed in accordance with Section 1108 (B) NBFU Pamphlet No. 80.

The joint between jambs and head should be fastened by extending the head over the jambs and securing the members together by a continuous weld or by angle clips, not less than $1\frac{1}{2}'' \times 1\frac{1}{2}'' \times \frac{3}{16}''$, these clips to be bolted or riveted to head and jambs by not less than $\frac{3}{8}''$ bolts or rivets, two to each leg of the clip.

R-W No. 389 Angle Iron Sills

All of the sills illustrated are manufactured according to the standard specifications and rules of the National Board of Fire Underwriters.

Sills as shown in Figures 1 and 3 are a combination of angle irons and concrete. This makes a very substantial threshold, and when the concrete is worn it can be replaced at a very small expense.

Sills as shown in Figure 2 are the same as Figure 1 with the addition of a steel plate on top of the concrete. Plate is always assembled to angle irons on job unless otherwise specified.

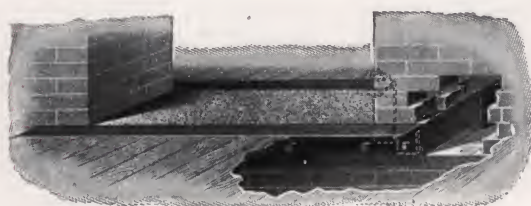


Figure 1
 $3\frac{1}{2}'' \times 5'' \times \frac{3}{8}''$ Angle for Flush Sill
with Bolts

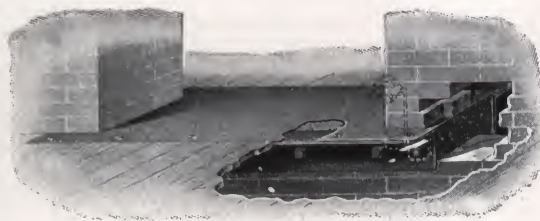


Figure 2
 $3\frac{1}{2}'' \times 5'' \times \frac{3}{8}''$ Angle and $\frac{1}{4}''$ Steel
Plate for Sill with Bolts

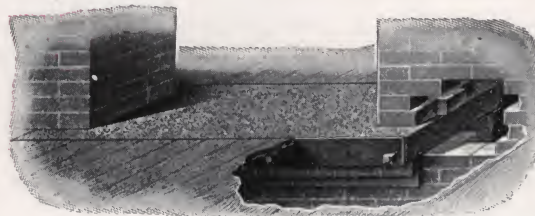


Figure 3
 $3\frac{1}{2}'' \times 6'' \times \frac{3}{8}''$ Angle for Corbeled
Sill with Bolts

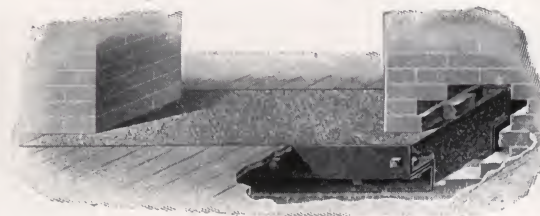


Figure 4
 $4'' \times 4'' \times \frac{3}{8}''$ Z Bars for
Sills with Bolts

Sill as shown in Figure 4 is a combination of Z bars and concrete, and has the same lasting qualities as mentioned for sills as shown in Figures 1 and 3.

State thickness of walls so we can send bolts of the proper length or plate of the proper width, as same are included in the price of the sills.

CHANNEL AND ANGLE IRON FRAMES ON PAGES 20-23

Richards-Wilcox

Fire DOORS



HAVE SAVED MILLIONS OF
DOLLARS IN ACTUAL
RECORDED INSTANCES

R-W features a Complete Line
of FIRE DOORS & HARDWARE
on the Following Pages Which Are All . . .

Specifically Designed for
COMMERCIAL and INDUSTRIAL USE!

Flat Track, Two Link-

For Single Sliding Doors, Incline Track



No. 102-2 Hardware for 2-Ply No. 446-2 Labeled Tin Clad Doors. (See Pages 14-15).

No. 102-3 Hardware for 3-Ply No. 446-3 Labeled Tin Clad Doors. (See Pages 14-15).



No. 1102 Hardware for No. 347 Labeled "FyeR-Wall" Sheet Metal Doors. (For Doors, See Pages 12-13).

● COUNTERBALANCE WEIGHTS

Weights furnished regularly for openings 8' high; if opening is higher, additional weights must be purchased.

● SETS

No. 102 for Tin Clad doors

No. 1102 for "FyeR-Wall" doors.

No. 2102 for "FyeR-Ward" doors.

● USE

Recommended where headroom exceeds 3'.

● INSPECTION AND APPROVAL

Included on list of fire door hardware inspected by the Underwriters' Laboratories, Inc., sponsored by the National Board of Fire Underwriters. Also approved by the Factory Mutual Laboratories.

● HEADROOM REQUIREMENTS

Square top openings:

Numbers 102-2 and 102-3, 14" at edge of opening toward which door closes plus $\frac{3}{4}$ " for each foot of track.

Numbers 1102 and 2102, $\frac{1}{2}$ " more headroom than above.

Arched top openings:

Numbers 102-2 and 102-3, 14" above top of arch plus $\frac{3}{4}$ " for each foot of track.

Numbers 1102 and 2102, $\frac{1}{2}$ " more headroom than above.

● SIDEWALL REQUIREMENTS

Require 13 $\frac{1}{2}$ " on sidewall toward which door closes and width of opening plus 21" on opposite side.

Note — When No. 647 doors and No. 2102 hardware are used on openings with steel jambs, the door must be made wide enough so that the back edge will extend 4" beyond the steel jamb. Thus the 21" dimension will be increased an amount equal to the width of the steel jamb.

● OPERATION

Two fusible links, one in opening exposed from both sides and one near ceiling. If either link fuses, door is released and closes by gravity.

If doors are used on both sides of wall, the cord can be made to pass through the wall near the ceiling at a point where it is shown attached to wall in the illustrations and the same arrangements continued on the other side, thus providing four fusible links. The fusing of any link releases both doors.

Fire Door Hardware

• DIRECTIONS FOR ORDERING (State the Following):

1. Number of openings and number of doors; whether doors are one side or both sides of wall. If latter, state if both doors can slide in same direction and state thickness of wall. Do not say doors when you mean openings.
2. Width and height of opening (mention width first).
3. Thickness of doors, if 2-ply Tin Clad, 3-ply Tin Clad, "FyeR-Wall" sheet metal, or "FyeR-Ward" flat surface steel doors.
4. Thickness of wall when wall bolts are required.
5. Distance from edge of opening to walls at right angles or other obstructions if any. Distance from highest points of opening to nearest obstructions overhead.
6. If opening is square or arched top; if arched give distance from floor to center of arch.
7. Right or left hand doors (see page 17).

Detail of parts shown on page 34.

Wall bolts are not furnished regularly with sets of hardware but will be furnished at listed prices when needed or requested. Table below gives number and size of bolts required for various sized openings. Number of bolts is the same for hardware on one or both sides of wall.

• SHIPPING WEIGHTS

Shipping weights of complete sets are for doors on one side of wall only. Doors on both sides of wall require two sets thereby doubling weight.

Hardware packed complete for assembling and attaching to door.



No. 2102 Hardware for No. 647 Labeled "FyeR-Ward" Flat Surface Steel Door. (See Pages 10-11).

Shipping Weights, Complete Sets

Nos. 102-2, 102-3, 1102 and 2102 Fire Door Hardware

Width Opening	Weight Lbs.	Width Opening	Weight Lbs.	Width Opening	Weight Lbs.
3'	170	7'	258	11'	330
3 1/2'	178	7 1/2'	266	11 1/2'	337
4'	187	8'	282	12'	345
4 1/2'	195	8 1/2'	288	*12 1/2'	367
5'	205	9'	297	*13'	375
5 1/2'	215	9 1/2'	305	*13 1/2'	382
6'	225	10'	315	*14'	390
6 1/2'	250	10 1/2'	322	*Oversize	

Shipping Weights of Partial Sets

Nos. 102-2, 102-3, 1102, or 2102 AUTOMATICS ONLY for openings up to 8' wide, weight per set. . . 44 lbs.

*No. 102-2 hangers for Nos. 102-2 and 2102 hardware, per pair. 30 lbs.

*No. 102-3 hangers for No. 102-3 hardware, per pair. . . 30 lbs.

*No. 1102 hangers with back plates for No. 1102 hardware, per pair. 35 lbs.

No. 102-84 track with brackets (length equals twice width of opening plus 21"), per foot. 5 1/2 lbs.

*For openings (not doors) over 6' wide, Underwriters require three hangers.

Wall Bolt List for Nos. 102-2, 102-3, 1102, and 2102 Fire Door Hardware NUMBER OF 3/4-INCH BOLTS REQUIRED FOR VARYING WIDTHS OF DOORWAY OPENINGS

Machine Bolts Used to Fasten:	Opening 2' 0" to 4' 8"	Opening 4' 9" to 5' 2"	Opening 5' 3" to 7' 8"	Opening 7' 9" to 8' 8"	Opening 8' 9" to 11' 11"	Opening 12' 0" to 13' 2"	Opening 13' 3" to 14' 0"	Length of Bolts Required for Sets Installed	
								On One Side of Wall	On Both Sides of Wall
Binders.	†4	†4	†4	†4	†4	†4	†4	Wall thickness plus 2"	Wall thickness plus 2"
*Guide Rollers.	1	1	1	1	1	1	1	Wall thickness plus 1"	Wall thickness minus 3/4"
End Track Brackets.	2	2	2	2	2	2	2	Wall thickness plus 4"	Wall thickness plus 6"
Center Track Brackets.	3	4	5	7	8	9	11	Wall thickness plus 4"	Wall thickness plus 5"
Rear Binder Hook (In No. 1102 sets only).	\$1	\$1	\$1	\$1	\$1	\$1	\$1	Wall thickness plus 1"	Wall thickness minus 3/4"
Rear Binder Hook (In No. 2102 sets only).	\$1	\$1	\$1	\$1	\$1	\$1	\$1	Wall thickness minus 2"	Wall thickness minus 7"
Total Bolts in Nos. 102-2, 102-3 sets.	10	11	12	14	15	16	18		
Total Bolts in Nos. 1102 and 2102 sets.	11	12	13	15	16	17	19		

*Wall Bolt not required when No. 102-80 Guide Rollers are used. †Openings over 8' high require 6 bolts. §Openings over 10' high require 2 bolts.

Flat Track Single Link—

For Single Sliding Doors, Incline Track



No. 201-2 Hardware for 2-ply No. 446-2 Labeled Tin Clad Doors. (See Pages 14-15).

No. 201-3 Hardware for 3-ply No. 446-3 Labeled Tin Clad Doors. (See Pages 14-15).



No. 1201 Hardware for No. 347 Labeled "FyeR-Wall" Sheet Metal Doors, (For Doors, See Pages 12-13).

● COUNTERBALANCE WEIGHTS

Weights furnished regularly for openings 8' high; if opening is higher, additional weights must be purchased. Also if width of opening is equal to or greater than the height, it is necessary to compound the weights, and an extra charge is made for the additional weights, pulleys, rope, etc. required.

● SETS

No. 201 for Tin Clad doors.

No. 1201 for "FyeR-Wall" doors.

No. 2201 for "FyeR-Ward" doors.

● USE

For single sliding doors on incline track.

● INSPECTION AND APPROVAL

Included in list of fire door hardware inspected by the Underwriters' Laboratories, Inc., sponsored by the National Board of Fire Underwriters; also approved by the Factory Mutual Laboratories.

● HEADROOM REQUIREMENTS

Square top openings:

Numbers 201-2 and 201-3, 14" at edge of opening toward which the door slides in closing plus $\frac{3}{4}$ " for each foot of track.

Numbers 1201 and 2201, $\frac{1}{2}$ " more headroom than above.

Arched top openings:

Numbers 201-2 and 201-3, 14" above top of arch plus $\frac{3}{4}$ " for each foot the track extends beyond center of opening.

Numbers 1201 and 2201, $\frac{1}{2}$ " more headroom than above.

● SIDEWALL REQUIREMENTS

Requires $13\frac{1}{2}$ " on sidewall toward which door closes; width of opening plus 19" on opposite side.

Note — When No. 647 doors and 2201 hardware are used on openings with steel jamb, the doors must be made wide enough so the back edge will extend 4" beyond the steel jamb. The 19" dimension will be increased an amount equal to the width of the steel jamb.

● OPERATION

Same style hardware as No. 102 on pages 30-31, except the overhead cord arrangement is omitted. These sets have only one fusible link which is exposed in the opening.

Fire Door Hardware

• DIRECTIONS FOR ORDERING (State the Following):

1. Number of openings and number of doors; whether doors are on one side or both sides of wall. If latter, state if both doors slide in same direction and state thickness of wall. Do not say doors when you mean openings.
2. Width and height of opening (mention width first).
3. Thickness of doors, if 2-ply Tin Clad, 3-ply Tin Clad, "FyeR-Wall" corrugated sheet metal, or "FyeR-Ward" flat surface steel doors.
4. Thickness of wall, when wall bolts are required.
5. Distance from edge of opening to walls at right angles or other obstructions if any. Distance from highest point of opening to nearest obstruction overhead.
6. If opening is square or arched top; if arched give distance from floor to center of arch.
7. Right or left hand doors (see Page 17).

Detail of parts shown on page 34.

Wall bolts not furnished regularly but will be furnished at listed prices when thickness of wall is given or when requested. Table below gives number and size of bolts required for various size openings. Number of bolts is the same for hardware on one or both sides of wall.

• SHIPPING WEIGHTS

Weights of complete sets are for doors on one side of wall only. Doors on both sides of wall require two sets thereby doubling weight.



No. 2201 Hardware for No. 647 Labeled "FyeR-Ward" Flat Surface Steel Door (See Pages 10-11)

Shipping Weights, Complete Sets

Nos. 201-2, 201-3, 1201, and 2201 Fire Door Hardware

Width Opening	Weight Lbs.	Width Opening	Weight Lbs.	Width Opening	Weight Lbs.
3'	165	7'	238	10 1/2'	302
3 1/2'	170	7 1/2'	248	11'	312
4'	176	8'	258	11 1/2'	322
4 1/2'	183	8 1/2'	268	12'	332
5'	191	9'	276	*12 1/2'	357
5 1/2'	202	9 1/2'	282	*13'	367
6'	208	10'	292	*13 1/2'	377
6 1/2'	232			*14'	387

*Oversize

Shipping Weights of Partial Sets

Nos. 201-2, 201-3, 1201, or 2201 AUTOMATICS ONLY for openings up to 8' wide, weight per set. 25 lbs.

*No. 102-2 hangers for No. 201-2 and 2201 hardware, per pair. 30 lbs.

*No. 102-3 hangers for No. 201-3 hardware, per pair. 30 lbs.

*No. 1102 hangers with back plate for No. 1201 hardware, per pair. 35 lbs.

No. 102-84 track with brackets (length equals twice width of opening plus 21"), per foot. 5 1/2 lbs.

*For openings (not doors) over 6' wide, Underwriters require three hangers.

Detail of parts shown on page 34.

Wall Bolt List for Nos. 201-2, 201-3, 1201, and 2201 Fire Door Hardware—Standard Style

NUMBER OF 3/4-INCH BOLTS REQUIRED FOR VARYING WIDTHS OF DOORWAY OPENINGS

Machine Bolts Used to Fasten	Opening 2' 0" to 4' 8"	Opening 4' 9" to 5' 2"	Opening 5' 3" to 7' 8"	Opening 7' 9" to 8' 8"	Opening 8' 9" to 11' 11"	Opening 12' 0" to 13' 2"	Opening 13' 3" to 14' 0"	Length of Bolts Required for Sets Installed	
								On One Side of Wall	On Both Sides of Wall
Binders.	†4	†4	†4	†4	†4	†4	†4	Wall thickness plus 2"	Wall thickness plus 2"
*Guide Rollers.	1	1	1	1	1	1	1	Wall thickness plus 1"	Wall thickness minus 3/4"
End Track Brackets.	2	2	2	2	2	2	2	Wall thickness plus 4"	Wall thickness plus 6"
Center Track Brackets.	3	4	5	7	8	9	11	Wall thickness plus 4"	Wall thickness plus 5"
Rear Binder Hook (In No. 1201 sets only).	§1	§1	§1	§1	§1	§1	§1	Wall thickness plus 1"	Wall thickness minus 3/4"
Rear Binder Hook (In No. 2201 sets only).	§1	§1	§1	§1	§1	§1	§1	Wall thickness minus 2"	Wall thickness minus 7"
Total Bolts in Nos. 201-2 and 201-3 sets	10	11	12	14	15	16	18		
Total Bolts in Nos. 1201 and 2201 sets	11	12	13	15	16	17	19		

*Wall Bolt not required when No. 102-80 Guide Rollers are used. †Openings over 8' high require 6 bolts. §Openings over 10' high require 2 bolts.



Parts and Weight List

Number	Description	Weight
56-2	Boston Guide Roller for 2-ply 446 Doors, each.....	11 lbs. 10 oz.
56-3	Boston Guide Roller for 3-ply 446 Doors, each.....	11 lbs. 15 oz.
70-1	Flush Door Pull for 2-ply 446 Doors, each.....	8 oz.
70-2	Flush Door Pull for 3-ply 446 and 647 Doors, each.....	1 lb.
71-1	Bow Handle for 2-ply 446 and 647 Doors, each.....	5 oz.
71-2	Bow Handle for 3-ply 446 and 647 Doors, each.....	8 oz.
71-3	Bow Handle for 347 Doors, each.....	9 oz.
71-4	Bow Handle for 347 Doors, each.....	10 oz.
96	Fusible Links, each.....	1/2 oz.
97	Fusible Link.....	1/2 oz.
102-14	Cord Pulley, each.....	4 oz.
102-15	Rope Pulley (Used with Chicago style only), each.....	1 lb. 9 oz.
102-14	Cord Pulley assembled with No. 102-41 Rope Angle, each.....	7 oz.
102-41	Rope Angle, each.....	3 oz.
102-61	Steel Washers for Wall Bolts, each.....	1 lb. 2 oz.
102-72	Bumper Shoes for 446 and 647, each.....	6 oz.
102-78	Eyebolt (For Cincinnati style only), each.....	10 oz.
102-80-2	Guide Roller for Angle Iron Frames only, for 2-ply 446 Doors, each.....	6 lbs. 10 oz.
102-80-3	Guide Roller for Angle Iron Frames only, for 3-ply 446 Doors, each.....	7 lbs.
102-81	Door Pulley (Used with Cincinnati style only), each.....	2 lbs.
102-82	Binder Strips, per foot.....	8 oz.
102-85	Track Brackets, each.....	1 lb. 8 oz.
102-86 1/2	Pulley, each.....	2 lbs. 8 oz.
102-87	Front Bumper, each.....	5 lbs. 11 oz.
102-88	Guide Roller Strip, per foot.....	13 oz.
102-89	Chafe Strip, per foot.....	5 oz.
102-90	Chain Tube (Used with Chicago and Pacific style only), each.....	2 lbs.
102-91	Weight Holders, each.....	6 oz.
102-92	Pulley and Trigger (Used with Chicago style only), each.....	4 lbs. 12 oz.
102-94	Right Angle Binder, each.....	4 lbs. 4 oz.
102-95-2	Binders for 2-ply 446, 347, 647 Doors, each.....	5 lbs. 8 oz.
102-95-3	Binders for 3-ply 446 and 347 Doors, each.....	5 lbs. 12 oz.
102-97	Link Bracket, each.....	8 oz.
102-98	Wedge, each.....	7 oz.
102-99-1	Lightweight, each.....	3 lbs.
102-99-2	Heavyweight, each.....	8 lbs. 4 oz.
102-SC	Sash Cord, per foot.....	1/2 oz.
102-UC	Universal Chain, per foot.....	1 oz.
102-BW	Bronze Wire, per foot.....	1/2 oz.
102-SH	S-Hook, each.....	1/4 oz.
102-TH	Trigger Hook, each.....	1/2 oz.
102-RL	Rope Link, each.....	1 oz.
171-2	Center Floor Stop for 2-ply 446, 347 Doors, each.....	3 lbs. 8 oz.
171-3	Center Floor Stop for 3-ply 446, 647 Doors, each.....	4 lbs. 6 oz.
201-92	Pulley (Used with Chicago style only), each.....	4 lbs. 8 oz.
203-D	Bracket (Used with Chicago style only), each.....	1 lb.
204-61	Double Washers, each.....	2 lbs. 2 oz.
204-94	Center Bumpers, right or left, 347, 446—2-3-ply and 647, each.....	1 lb. 6 oz.
204-95-2	Center Binder for 2-ply 446 Doors, each.....	6 lbs.
204-95-3	Center Binder for 3-ply 446 Doors and 347 Doors, each.....	6 lbs. 7 oz.
206-020	Weight (3 small) with weight holder, each.....	2 lbs. 8 oz.
302-93	Wall Pulley (Similar to 201-92), each.....	3 lbs.
303-79	Wall Pulley (Used with Chicago style only), each.....	5 lbs. 12 oz.
303-ST-C	Steel Chain (For closing weights), per foot.....	1 oz.
304-85-2	End Track Bracket for 2-ply 446 Doors, each.....	1 lb. 8 oz.
304-85-3	End Track Bracket for 3-ply 446 Doors and 347 Doors, each.....	2 lbs. 8 oz.
304-86	Rope Pulley and Back Bumper, complete.....	7 lbs. 14 oz.
304-87	Front Bumper, each.....	6 lbs.
304-DB-2	Drop Brackets for 2-ply 446 Doors, each.....	10 lbs. 1 oz.
304-DB-3	Drop Brackets for 3-ply 446 Doors and 347 Doors, each.....	10 lbs. 4 oz.
304-SB	Pulley, each.....	7 oz.
305-94 1/2	Center Binder.....	10 lbs.
305-95 1/2	Center Binder.....	10 lbs.
606-4	Main Weight.....	5 lbs. 8 oz.
606-EC	Extra Weight (Used with Chicago style only), each.....	1 lb. 11 oz.
706-5	Heavyweight (Used with Chicago style only), each.....	6 lbs.
1102-86	Back Bumper with Rope Pulley and Trigger.....	8 lbs. 1 oz.
1102-93	Rear Binder Pocket (Used with 347 Doors only), each.....	1 lb. 14 oz.
1102-94	Rear Binder Hook (Used with 347 Doors only), each.....	1 lb. 12 oz.
1102-876	Back Bumper.....	5 lbs. 11 oz.
1201-86	Back Bumper with Rope Pulley.....	7 lbs. 8 oz.
1201-183	Back Bumper with Trigger.....	7 lbs. 12 oz.
1303-86	Back Bumper.....	5 lbs. 12 oz.
1304-86	Back Bumper.....	6 lbs. 6 oz.
2102-90	Track Binders (Similar to 1102-90), each.....	9 oz.
2102-93	Rear Binder Pocket (Similar to 1102-93), 647, 347 Doors, each.....	1 lb. 6 oz.
2102-94	Rear Binder Hook (Similar to 1102-94) 647, 347 Doors, each.....	5 lbs. 15 oz.

Note—State whether hardware is desired for right or left hand door. (See page 17.)

Flat Track, Fire

For Sliding Doors in Pairs, Incline Track



No. 204-2 Hardware for 2-ply No. 446-2 Tin Clad Doors.
(See Pages 14-15)

No. 204-3 Hardware for 3-ply No. 446-3 Tin Clad Doors.
(See Pages 14-15)



*No. 1204 Hardware for No. 347 "FyeR-Wall" Sheet Metal Doors.
(See Pages 12-13).

*Included in list of fire door hardware inspected by the Underwriters' Laboratories, Inc., sponsored by the National Board of Fire Underwriters.

● COUNTERBALANCE WEIGHTS

Weights furnished regularly for openings 8' high; if opening is higher, additional weights are required.

● SETS

No. 204 for Tin Clad doors.

*No. 1204 for "FyeR-Wall" doors.

No. 2204 for "FyeR-Ward" doors.

● USE

For pairs of sliding doors on incline track.

● INSPECTION AND APPROVAL

The Nos. 204 and 2204 hardware is not included in list of fire door hardware inspected by Underwriters' Laboratories, Inc., but is acceptable under certain conditions. Consult local inspector and secure his approval before ordering. The No. 1204 hardware is included in list of fire door hardware inspected by the Underwriters' Laboratories, Inc., sponsored by the National Board of Fire Underwriters.

● HEADROOM REQUIREMENTS

Square top openings:

Nos. 204-2 or 204-3, 14" at center of opening plus $\frac{3}{4}$ " for each foot track extends beyond center of opening.

Nos. 1204 and 2204 require $\frac{1}{2}$ " more headroom.

Arched top openings:

Nos. 204-2 or 204-3, 14" above top of arch plus $\frac{3}{4}$ " for each foot track extends beyond center of opening.

Nos. 1204 and 2204 require $\frac{1}{2}$ " more headroom.

● SIDEWALL REQUIREMENTS

Requires one-half width of opening plus 15" wall space on each side of opening. When No. 647 doors and No. 2204 hardware are used with steel jambs, the doors must be made wide enough so back edge will extend 4" beyond steel jambs. The 15" dimension will be increased an amount equal to the width of the steel jambs.

● OPERATION

Operation is the same as No. 201 hardware except that it is applied to pairs of doors. This type has one fusible link on each door and both are exposed in the opening.

No. 1204 is a 2-link door arrangement.

Door Hardware

• DIRECTIONS FOR ORDERING

1. Number of openings and number of doors; whether doors are on one side or both sides of wall. If latter, state thickness of wall. Do not say doors when you mean openings, as doors must lap four inches on each side and at top (see note under "Sidewall Requirements").
2. Width and height of opening (mention width first).
3. Thickness of doors, if 2-ply Tin Clad, 3-ply Tin Clad, "FyeR-Wall" sheet metal doors, or "FyeR-Ward" flat surface steel doors.
4. Thickness of wall, when wall bolts are required.
5. Distance from edge of opening to walls at right angles or other obstructions if any. State distance from highest points of openings to nearest obstructions overhead.
6. If opening is square or arched top; if arched, give distance from floor to center of arch.

Detail of parts shown on page 34.

• SHIPPING WEIGHTS

Weights of complete sets are for doors on one side of wall only.

Doors on both sides of wall require two sets thereby doubling given weights.

Hardware packed complete for assembling and attaching to door.



No. 2204 Hardware for No. 647 "FyeR-Ward" Flat Surface Steel Door. (See Pages 10-11).

Shipping Weights, Complete Sets

Nos. 204-2, 204-3, 1204 and 2204 Fire Door Hardware

Width Opening	Weight Lbs.	Width Opening	Weight Lbs.
3'	230	9'	326
3 1/2'	235	9 1/2'	331
4'	241	10'	337
4 1/2'	258	10 1/2'	349
5'	264	11'	360
5 1/2'	269	11 1/2'	371
6'	275	12'	381
6 1/2'	286	12 1/2'	419
7'	292	13'	427
7 1/2'	297	13 1/2'	435
8'	303	14'	443
8 1/2'	308		

Shipping Weights of Partial Sets

Nos. 204-2, 204-3, 1204, and 2204 AUTOMATICS ONLY for openings up to 8' wide, weight per set.

*No. 102-2 hangers for Nos. 204-2 and 2204 hardware, per pair. 31 lbs.

*No. 102-3 hangers for No. 204-3 hardware, per pair. 30 lbs.

*No. 1102 hangers with back plates for No. 1204 hardware, per pair. 35 lbs.

No. 204-84 track with brackets (length of each track equals width of opening plus 9 1/2"), per foot. 5 1/2 lbs.

Astragals (3/16" x 3") can be furnished when requested, per foot. 2 lbs.

*For openings (not doors) over 12' wide, Underwriters require six hangers. Detail of parts shown on page 34.

Wall Bolt List for Nos. 204-2, 204-3, 1204, and 2204 Fire Door Hardware—Standard Style

NUMBER OF 3/4-INCH BOLTS REQUIRED FOR VARYING WIDTHS OF DOORWAY OPENINGS

Machine Bolts Used to Fasten	Opening 4' 0" to 4' 5"	Opening 4' 6" to 9' 8"	Opening 9' 9" to 10' 6"	Opening 10' 7" to 14' 0"	Length of Bolts Required for Sets Installed	
					On One Side of Wall	On Both Sides of Wall
*Guide Rollers.	2	2	2	2	Wall thickness plus 1"	Wall thickness minus 3/4"
Center Track Brackets.	6	8	10	12	Wall thickness plus 4"	Wall thickness plus 5"
End Track Brackets.	2	2	2	2	Wall thickness plus 4"	Wall thickness plus 6"
Rear Binder Hook (In 1204 set only).	\$2	\$2	\$2	\$2	Wall thickness plus 1"	Wall thickness minus 3/4"
Rear Binder Hook (In 2204 set only).	\$2	\$2	\$2	\$2	Wall thickness minus 2"	Wall thickness minus 7"
Total Bolts in Nos. 204-2 and 204-3 sets.	10	12	14	16		
Total Bolts in Nos. 1204 and 2204 sets.	12	14	16	18		

*Wall Bolt not required when No. 102-80 Guide Rollers are used. §Openings over 10' high require 4 bolts.

Flat Track Single Link

For Single Sliding Doors, Level Track



No. 303-2 Hardware for 2-ply No. 446-2 Labeled Tin Clad Doors. (See Pages 14-15).

No. 303-3 Hardware for 3-ply No. 446-3 Labeled Tin Clad Doors. (See Pages 14-15).



No. 1303 Hardware for No. 347 Labeled "FyeR-Wall" Sheet Metal Doors. (See Pages 12-13).

● COUNTERBALANCE WEIGHTS

Weights furnished regularly for openings 8' high; if opening is higher, additional weights must be purchased. Also if width of opening is equal to or greater than the height, it is necessary to compound both the opening and closing weights, and an extra charge is made for the additional weights, pulleys, rope, etc. required.

● SETS

No. 303 for Tin Clad doors.
No. 1303 for "FyeR-Wall" doors.
No. 2303 for "FyeR-Ward" doors.

● USE

For use where there is not enough headroom to place track on an incline of $\frac{3}{4}$ " to the foot. Two sets of weights balance the door.

● INSPECTION AND APPROVAL

Included in the list of Fire Door Hardware inspected by the Underwriters' Laboratories, Inc., sponsored by the National Board of Fire Underwriters and is also approved by the Factory Mutual Laboratories.

● HEADROOM REQUIREMENTS

Nos. 303-2 and 303-3, 14".
Nos. 1303 and 2303, 14½".

● SIDEWALL REQUIREMENTS

Requires 20" on sidewall toward which door closes and width of opening plus 19" on opposite side. When No. 647 doors and No. 2303 hardware are used with steel jambs, the door must be made wide enough so the back edge will extend 4" beyond steel jamb. The 19" dimension will be increased an amount equal to the width of the steel jamb.

● OPERATION

Two sets of weights are used to balance the door. The back weights are held in position by a fusible link. In case of fire this link fuses and allows back weights to drop and the front weights then pull the door shut.

● SHIPPING WEIGHTS

Weights of complete sets are for doors on one side of wall only. Doors on both sides of wall require two sets thereby doubling weight. Hardware packed complete for assembling and attaching to door.

Fire Door Hardware

• DIRECTIONS FOR ORDERING

1. Number of openings and number of doors; whether doors are on one side or both sides of wall. If latter, state if both doors can slide in the same direction and state thickness of wall. Do not say doors when you mean openings, as doors must lap four inches on each side and at top (see note under "Sidewall Requirements").
2. Width and height of opening (mention width first).
3. Thickness of doors, if 2-ply Tin Clad, 3-ply Tin Clad, "FyeR-Wall" sheet metal doors or "FyeR-Ward" flat surface steel doors.
4. Thickness of wall, when wall bolts are required.
5. Distance from edge of opening to walls at right angles or other obstructions if any. State distance from highest points of openings to nearest obstructions overhead.
6. If opening is square or arched top; if arched, give distance from floor to center of arch.
7. Is hardware for right or left hand doors? (See Page 17).

Detail of parts shown on Page 34.



No. 2303 Hardware for No. 647 Labeled "FyeR-Ward" Flat Surface Steel Door. (See Pages 10-11).

Shipping Weights, Complete Sets

Nos. 303-2, 303-3, 1303 and 2303 Fire Door Hardware

Width Opening	Weight Lbs.	Width Opening	Weight Lbs.
3'	182	9'	293
3 1/2'	188	9 1/2'	299
4'	202	10'	304
4 1/2'	208	10 1/2'	310
5'	213	11'	316
5 1/2'	225	11 1/2'	322
6'	233	12'	328
6 1/2'	254	*12 1/2'	349
7'	259	*13'	355
7 1/2'	265	*13 1/2'	361
8'	273	*14'	367
8 1/2'	279	*Oversize	

Shipping Weights of Partial Sets

- Nos. 303-2, 303-3, 1303, or 2303 AUTOMATICS ONLY for openings up to 8' wide, per set..... 59 lbs.
- *No. 303-2 hangers for Nos. 303-2 and 2303 hardware, per pair..... 30 lbs.
- *No. 303-3 hangers for No. 303-3 hardware, per pair..... 30 lbs.
- *No. 1303 hangers with back plates for No. 1303 hardware, per pair.. 35 lbs.
- No. 303-84 track with brackets (length equals twice width of opening plus 29"), per foot..... 5 1/2 lbs.
- *For openings (not doors) over 6' wide, Underwriters require three hangers.
- Detail of parts shown on page 34.

Wall Bolt List for Nos. 303-2, 303-3, 1303, and 2303 Fire Door Hardware—Standard Style

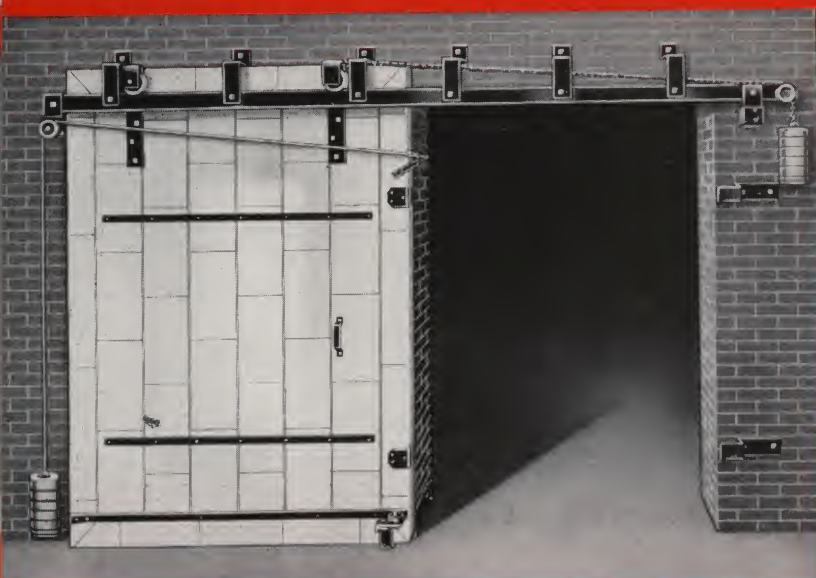
NUMBER OF 3/4-INCH BOLTS REQUIRED FOR VARYING WIDTHS OF DOORWAY OPENINGS

Machine Bolts Used to Fasten:	Opening 2' 0" to 4' 8"	Opening 4' 9" to 5' 2"	Opening 5' 3" to 7' 8"	Opening 7' 9" to 8' 8"	Opening 8' 9" to 11' 11"	Opening 12' 0" to 13' 2"	Opening 13' 3" to 14' 0"	Length of Bolts Required for Sets Installed	
								On One Side of Wall	On Both Sides of Wall
Binders.....	†4	†4	†4	†4	†4	†4	†4	Wall thickness plus 2"	Wall thickness plus 2"
*Guide Rollers.....	1	1	1	1	1	1	1	Wall thickness plus 1"	Wall thickness minus 3/4"
End Track Brackets.....	2	2	2	2	2	2	2	Wall thickness plus 4"	Wall thickness plus 6"
Center Track Brackets.....	3	4	5	7	8	9	11	Wall thickness plus 4"	Wall thickness plus 5"
Rear Binder Hook (In No. 1303 sets only).....	§1	§1	§1	§1	§1	§1	§1	Wall thickness plus 1"	Wall thickness minus 3/4"
Rear Binder Hook (In No. 2303 sets only).....	§1	§1	§1	§1	§1	§1	§1	Wall thickness minus 2"	Wall thickness minus 7"
Total Bolts in No. 303-2 and No. 303-3 sets.....	10	11	12	14	15	16	18		
Total Bolts in Nos. 1303 and 2303 sets.....	11	12	13	15	16	17	19		

*Wall Bolts not required when No. 102-80 Guide Rollers are used. †Openings over 8' high require 6 bolts. §Openings over 10' high require 2 bolts.

Flat Track Single Link

For Single Sliding Doors, Drop Bracket, Level Track



No. 304-2 Hardware for 2-Ply Labeled Tin Clad Doors
(See Pages 14-15)

No. 304-3 Hardware for 3-Ply Labeled Tin Clad Doors
(See Pages 14-15)



No. 1304 Hardware for No. 347 Labeled "FyeR-Wall" Sheet Metal
Doors (See Pages 12-13)

● COUNTERBALANCE WEIGHTS

Weights furnished regularly for openings 8' high; if opening is higher, additional weights must be purchased. Also if width of opening is equal to or greater than the height, it is necessary to compound both the opening and closing weights, and an extra charge is made for the additional weights, pulleys, rope, etc. required.

● SETS

No. 304 for Tin Clad doors.
No. 1304 for "FyeR-Wall" doors.
No. 2304 for "FyeR-Ward" doors.

● USE

For locations where very little headroom is available and the track is dropped down in front of doorway.

● INSPECTION AND APPROVAL

Included in list of fire door hardware inspected by Underwriters' Laboratories, Inc., sponsored by the National Board of Fire Underwriters and is also approved by the Factory Mutual Laboratories.

● HEADROOM REQUIREMENTS

Nos. 304-2 and 304-3 require 8" of headroom.

Nos. 1304 and 2304 sets require 8½" of headroom.

Note — Track extends 5" below top of opening.

● SIDEWALL REQUIREMENTS

Requires 20" on sidewall toward which the door closes, and width of opening plus 19" on opposite side. When No. 647 doors and No. 2304 hardware are used with steel jambs, the door must be made wide enough so the back edge will extend 4" beyond steel jamb. Therefore, the 19" will be increased an amount equal to the width of the steel jamb.

● OPERATION

Two sets of weights balance the door while one fusible link holds the back weights in position. When this link fuses and allows the back weights to drop, the front weights then pull the door shut. The one fusible link is exposed in the opening.

Fire Door Hardware

• DIRECTIONS FOR ORDERING

1. Number of openings and number of doors; whether doors are on one side or both sides of wall. If latter, state if both doors can slide in the same direction and state thickness of wall. Do not say doors when you mean openings, as doors must lap four inches on each side and at top (see note under "Sidewall Requirements").
2. Width and height of opening (mention width first).
3. Thickness of doors, if 2-ply Tin Clad, 3-ply Tin Clad, "FyeR-Wall" sheet metal doors or "FyeR-Ward" flat surface steel doors.
4. Thickness of wall, when wall bolts are required.
5. Distance from edge of opening to walls at right angles or other obstructions if any. State distance from highest points of openings to nearest obstructions overhead.
6. If opening is square or arched top; if arched, give distance from floor to center of arch.
7. Is hardware for a right or left hand door? (See Page 17).

Detail of parts shown on Page 34.

• SHIPPING WEIGHTS

Weights of complete sets are for doors on one side of wall only; doors on both sides of wall require two sets thereby doubling weight. Hardware packed complete ready for installation.



No. 2304 Hardware for No. 647 Labeled "FyeR-Ward" Flat Surface Steel Door. (See Pages 10-11).

Shipping Weights, Complete Sets

Nos. 304-2, 304-3, 1304, and 2304 Fire Door Hardware

Width Opening	Weight Lbs.	Width Opening	Weight Lbs.
3'	211	9'	377
3 1/2'	217	9 1/2'	383
4'	227	10'	388
4 1/2'	235	10 1/2'	398
5'	250	11'	406
5 1/2'	268	11 1/2'	412
6'	278	12'	430
6 1/2'	299	*12 1/2'	451
7'	304	*13'	457
7 1/2'	310	*13 1/2'	477
8'	344	*14'	484
8 1/2'	350	*Oversize	

Shipping Weights of Partial Sets

Nos. 304-2, 304-3, 1304, or 2304 AUTOMATICS ONLY for openings up to 8' wide, per set..... 37 1/2 lbs.

*No. 303-3 hangers for Nos. 304-2, 304-3, or 2304 hardware, per pair. 30 lbs.

*No. 1303 hangers with back plates for No. 1304 hardware, per pair. 35 lbs.

No. 304-84 track with brackets (length equals twice width of opening plus 29"), per foot..... 8 lbs.

*For openings (not doors) over 6' wide, Underwriters require three hangers. Detail of parts shown on page 34.

Wall Bolt List for Nos. 304-2, 304-3, 1304, and 2304 Fire Door Hardware—Standard Style

NUMBER OF 3/4-INCH BOLTS REQUIRED FOR VARYING WIDTHS OF DOORWAY OPENINGS

Machine Bolts Used to Fasten:	Opening 2' 0" to 4' 8"	Opening 4' 8" to 5' 2"	Opening 5' 3" to 7' 8"	Opening 7' 9" to 8' 8"	Opening 8' 9" to 11' 11"	Opening 12' 0" to 13' 2"	Opening 13' 3" to 14' 0"	Length of Bolts Required for Sets Installed	
								On One Side of Wall	On Both Sides of Wall
Binders.....	†4	†4	†4	†4	†4	†4	†4	Wall thickness plus 2"	Wall thickness plus 2"
*Guide Roller.....	1	1	1	1	1	1	1	Wall thickness plus 1"	Wall thickness minus 3/4"
Drop Brackets.....	3	4	5	7	8	9	11	Wall thickness plus 2"	Wall thickness plus 2"
End Track Brackets.....	2	2	2	2	2	2	2	**Wall thickness plus 7"	†Wall thickness plus 11"
Rear Binder Hook (In No. 1304 sets only).....	\$1	\$1	\$1	\$1	\$1	\$1	\$1	Wall thickness plus 1"	Wall thickness minus 3/4"
Rear Binder Hook (In No. 2304 sets only).....	\$1	\$1	\$1	\$1	\$1	\$1	\$1	Wall thickness minus 2"	Wall thickness minus 7"
Total Bolts in Nos. 304-2 and 304-3 sets	10	11	12	14	15	16	18		
Total Bolts in Nos. 1304 and 2304 sets	11	12	13	15	16	17	19		

*Wall Bolt not needed when 102-80 Guide Rollers are used. †Openings over 10' high require 2 bolts.

**For 2-ply Tin Clad doors, wall thickness plus 6". ‡For 2-ply Tin Clad doors, wall thickness plus 9".

†Openings over 8' high require 6 bolts.

Flat Track Single Link Fire Door Hardware

For Pairs of Sliding Doors, Level Flat Track



*No. 1302 Hardware for No. 347 Door.
(See Pages 12-13).

*Included in list of fire door hardware inspected by the Underwriters' Laboratories, Inc. Sponsored by the National Board of Fire Underwriters.

Shipping Weights, Complete Sets Nos. 302-2, 302-3, 1302, and 2302 Fire Door Hardware

Width Opening	Weight Lbs.	Width Opening	Weight Lbs.	Width Opening	Weight Lbs.
3'	264	7'	326	11'	385
3 1/2'	269	7 1/2'	331	11 1/2'	392
4'	275	8'	337	12'	399
4 1/2'	292	8 1/2'	342	12 1/2'	436
5'	298	9'	360	13'	443
5 1/2'	303	9 1/2'	365	13 1/2'	450
6'	309	10'	371	14'	457
6 1/2'	320	10 1/2'	378		

Shipping Weights of Partial Sets

Nos. 302-2, 302-3, 1302, or 2302 AUTOMATICS ONLY for openings up to 8' wide, per set. 79 lbs.

*No. 303-2 hangers for Nos. 302-2 or 2302 hardware, per pair. 30 lbs.

*No. 303-3 hangers for No. 302-3 hardware, per pair. 30 lbs.

*No. 1303 hangers with back plates for No. 2302 hardware, per pair. 35 lbs.

No. 204-84 track with brackets (length of each track equals width of opening plus 9 1/2"), per foot. 4 1/2 lbs.

*For openings (not doors) over 12' wide, Underwriters require six hangers.
Detail of parts shown on page 34.

SETS

No. 302 for Tin Clad doors.

*No. 1302 for "FyeR-Wall" doors.

No. 2302 for "FyeR-Ward" doors.

USE

For situations such as not sufficient wall space on one side to slide a single door and where low headroom will not permit the use of regular No. 204 hardware.

INSPECTION AND APPROVAL

The Nos. 302 and 2302 hardware are not included in list of fire door hardware inspected by Underwriters' Laboratories, Inc., but are acceptable under certain conditions. Consult local inspector before ordering. The No. 1302 hardware is included in the list of fire door hardware inspected by the Underwriters' Laboratories, Inc., sponsored by the National Board of Fire Underwriters.

HEADROOM REQUIREMENTS

Nos. 302-2 and 302-3 require 17" headroom.
Nos. 1302 and 2302 hardware require 17 1/2".

SIDEWALL REQUIREMENTS

Requires half the width of opening plus 20" wall space on each side of opening.

OPERATION

One fusible link on each door; both are exposed in opening. Operates the same as No. 303 except using double sliding doors.

DIRECTIONS FOR ORDERING

See pages 38-39 (No. 303 Hdw.) and give all information asked for.

SHIPPING WEIGHTS

Weights of complete sets are for doors on one side of wall only; doors on both sides of wall require two sets thereby doubling weights. Hardware packed complete ready for installation.

COUNTERBALANCE WEIGHTS

Weights furnished regularly for openings 8' high; if opening is higher, additional weights must be purchased.

Wall Bolt List for Nos. 302-2, 302-3, 1302, and 2302 Fire Door Hardware—Standard Style NUMBER OF 3/4-INCH BOLTS REQUIRED FOR VARYING WIDTHS OF DOORWAY OPENINGS

Machine Bolts Used to Fasten:	Opening 4' 0" to 4' 5"	Opening 4' 6" to 9' 8"	Opening 9' 9" to 10' 6"	Opening 10' 7" to 14' 0"	Length of Bolts Required for Sets Installed	
					On One Side of Wall	On Both Sides of Wall
*Guide Rollers	2	2	2	2	Wall thickness plus 1"	Wall thickness minus 3/4"
Center Track Brackets	6	8	10	12	Wall thickness plus 4"	Wall thickness plus 5"
End Track Brackets	2	2	2	2	Wall thickness plus 4"	Wall thickness plus 6"
Rear Binder Hook (In 1302 set only)	2	2	2	2	Wall thickness plus 1"	Wall thickness minus 3/4"
Rear Binder Hook (In 2302 set only)	2	2	2	2	Wall thickness minus 2"	Wall thickness minus 7"
Weight Pulleys	4	4	4	4	Wall thickness plus 4"	Wall thickness plus 6 1/2"
Total Bolts in Nos. 302-2 and 302-3 sets	14	16	18	20		
Total Bolts in Nos. 1302 and 2302 sets	16	18	20	22		

*Wall Bolt not required when No. 102-80 Guide Rollers are used. §Openings over 10' high require 4 bolts.

Flat Track Single Link Fire Door Hardware

For Pairs of Sliding Doors, Level Flat Track, Drop Bracket Type

• SETS

No. 305 for Tin Clad doors.

No. 1305 for "FyeR-Wall" doors.

No. 2305 for "FyeR-Ward" doors.

• USE

For special conditions such as not sufficient wall space on one side to slide a single door and where low headroom will not permit use of our No. 204 hardware.

• INSPECTION AND APPROVAL

This hardware is not included in list of fire door hardware inspected by Underwriters' Laboratories, Inc., but is acceptable under certain conditions. Consult local inspector and secure his approval before ordering.

• HEADROOM REQUIREMENTS

Requires 9" headroom.

Note — Track extends 5" below top of opening.

• SIDEWALL REQUIREMENTS

Requires half the width of opening plus 20" of wall space on each side of opening.

• OPERATION

One fusible link on each door and both are exposed in opening at all times. Operates the same as No. 304, page 40, except using sliding doors in pairs.

• DIRECTIONS FOR ORDERING

See page 41 and give all information asked for.

• SHIPPING WEIGHTS

Weights of complete sets are for doors on one side of wall only; doors on both sides of wall require two sets thereby doubling weight. Hardware packed complete ready for installation.

• COUNTERBALANCE WEIGHTS

Weights furnished regularly for openings 8' high; if opening is higher, additional weights must be purchased.



No. 305-3 Hardware and No. 446-3 Doors or
No. 305-2 Hardware and No. 446-2 Doors

Shipping Weights, Complete Sets

Nos. 305-2, 305-3, 1305, and 2305 Fire Door Hardware

Width Opening	Weight Lbs.	Width Opening	Weight Lbs.	Width Opening	Weight Lbs.
3'	304	7'	416	10½'	525
3½'	309	7½'	432	11'	545
4'	315	8'	448	11½'	555
4½'	332	8½'	464	12'	565
5'	358	9'	480	12½'	600
5½'	383	9½'	496	13'	612
6'	389	10'	516	13½'	624
6½'	400			14'	636

Shipping Weights of Partial Sets

Nos. 305-2, 305-3, 1305, and 2305 AUTOMATICS ONLY for openings up to 8' wide, per set. 79 lbs.

*No. 303-3 hangers for Nos. 305-2, 305-3, or 2305 hardware, per pair. 30 lbs.

*No. 1303 hangers with back plates for No. 1305 hardware, per pair. 35 lbs.

No. 305-84 track with brackets (length of each track equals width of opening plus 9½"), per foot. 8 lbs.

*For openings (not doors) over 12' wide, Underwriters require six hangers.

Detail of parts shown on page 34.

Wall Bolt List for Nos. 305-2, 305-3, 1305, and 2305 Fire Door Hardware

NUMBER OF 3/4 INCH BOLTS REQUIRED FOR VARYING WIDTHS OF DOORWAY OPENINGS

Machine Bolts Used to Fasten:	Opening 4' 0" to 4' 5"	Opening 4' 6" to 9' 8"	Opening 9' 9" to 10' 6"	Opening 10' 7" to 14' 0"	Length of Bolts Required for Sets Installed	
					On One Side of Wall	On Both Sides of Wall
*Guide Rollers.	2	2	2	2	Wall thickness plus 1"	Wall thickness minus ¾"
Center Track Brackets.	6	8	10	12	Wall thickness plus 4"	Wall thickness plus 5"
End Track Brackets.	2	2	2	2	Wall thickness plus 4"	Wall thickness plus 6"
Rear Binder Hook (In 1305 set only).	2	2	2	2	Wall thickness plus 1"	Wall thickness minus ¾"
Rear Binder Hook (In 2305 set only).	2	2	2	2	Wall thickness minus 2"	Wall thickness minus 7"
Weight Pulleys.	4	4	4	4	Wall thickness plus 5"	Wall thickness plus 8½"
Total Bolts in Nos. 305-2 and 305-3 sets.	14	16	18	20		
Total Bolts in Nos. 1305 and 2305 sets.	16	18	20	22		

*Wall Bolt not required when No. 102-80 Guide Rollers are used. §Openings over 10' high require 4 bolts.

Flat Track Two Link

For Single Sliding Doors, Level Track



No. 315-2 Hardware for 2-ply No. 446-2 Labeled Tin Clad Doors. (See Pages 14-15.)

No. 315-3 Hardware for 3-ply No. 446-3 Labeled Tin Clad Doors. (See Pages 14-15.)



No. 1315 Hardware for No. 347 Labeled "FyeR-Wall" Sheet Metal Doors. (See Pages 12-13.)

- **SETS**

No. 315 for Tin Clad doors.

No. 1315 for "FyeR-Wall" doors.

No. 2315 for "FyeR-Ward" doors.

- **USE**

For single sliding doors level track.

- **INSPECTION AND APPROVAL**

Included in the list of fire door hardware inspected by Underwriters' Laboratories, Inc., sponsored by the National Board of Fire Underwriters.

- **HEADROOM REQUIREMENTS**

Nos. 315-2 and 315-3 require 14" of headroom.

Nos. 1315 and 2315 require 14½" of headroom.

- **SIDEWALL REQUIREMENTS**

Requires 20" on sidewall toward which door closes and width of opening plus 19" on opposite side. When No. 647 door and No. 2315 hardware are used with steel jambs, the door must be made wide enough so the back edge will extend 4" beyond steel jamb. Therefore, the 19" dimension will be increased an amount equal to the width of the steel jamb.

- **OPERATION**

Two sets of weights balance the door. The back weights are held in position by two fusible links, one constantly in opening exposed from both sides and one near ceiling. In case of fire either link may fuse and allow back weights to drop; the front weights then pull the door shut.

If doors are used on both sides of wall, the cord can be made to pass through wall near ceiling at points where it is shown attached to the wall in illustration, and same arrangement continued on other side, thus providing four links.

The fusing of any one of the four links releases both doors.

- **COUNTERBALANCE WEIGHTS**

Weights furnished regularly for openings 8' high; if opening is higher, additional weights must be purchased. Also if width of opening is equal to or greater than the height, it is necessary to compound the closing weights, and an extra charge is made for the additional weights, pulleys, rope, etc., required.

Fire Door Hardware

• DIRECTIONS FOR ORDERING

1. Number of openings and number of doors; whether doors are on one side or both sides of wall. If latter, state if both doors can slide in the same direction and state thickness of wall. Do not say doors when you mean openings, as doors must lap four inches on each side and at top (see note under "Sidewall Requirements").
 2. Width and height of opening (mention width first).
 3. Thickness of doors, if 2-ply Tin Clad, 3-ply Tin Clad, "FyeR-Wall" sheet metal doors or "FyeR-Ward" flat surface steel doors.
 4. Thickness of wall, when wall bolts are required.
 5. Distance from edge of opening to walls at right angles or other obstructions if any. State distance from highest points of openings to nearest obstructions overhead.
 6. If opening is square or arched top; if arched give distance from floor to center of arch.
 7. Is hardware for a right or left hand door? (See page 17).
- Detail of parts shown on page 34.

• SHIPPING WEIGHTS

Weights of complete sets are for doors on one side of wall only. Doors on both sides of wall require two sets thereby doubling weight. Hardware packed complete for assembling and attaching to door.



No. 2315 Hardware for No. 647 Labeled "FyeR-Ward" Flat Surface Steel Door. (See Pages 10-11).

Shipping Weights, Complete Sets

Nos. 315-2, 315-3, 1315, and 2315 Fire Door Hardware

Width Opening	Weight Lbs.	Width Opening	Weight Lbs.
3'	187	9'	314
3 1/2'	196	9 1/2'	322
4'	213	10'	327
4 1/2'	220	10 1/2'	340
5'	227	11'	352
5 1/2'	238	11 1/2'	365
6'	250	12'	380
6 1/2'	272	*12 1/2'	405
7'	279	*13'	420
7 1/2'	284	*13 1/2'	435
8'	297	*14'	450
8 1/2'	299	*Oversize	

Shipping Weights of Partial Sets

Nos. 315-2, 315-3, 1315 or 2315 AUTOMATICS ONLY for openings up to 8' wide, per set.

78 lbs.

*No. 303-2 hangers for Nos. 315-2 and 2315 hardware, per pair.

30 lbs.

*No. 303-3 hangers for Nos. 315-3 hardware, per pair

30 lbs.

*No. 1303 hangers with back plates for No. 1315 hardware, per pair.

35 lbs.

No. 303-84 track with brackets (length equals twice width of opening plus 29"), per foot.

5 1/2 lbs.

*For openings (not doors) over 6' wide, Underwriters require three hangers.

Detail of parts shown on page 34.

Wall Bolt List for Nos. 315-2, 315-3, 1315 and 2315 Fire Door Hardware—Standard Style

NUMBER OF 3/4-INCH BOLTS REQUIRED FOR VARYING WIDTHS OF DOORWAY OPENINGS

Machine Bolts Used to Fasten	Opening 2' 0" to 4' 8"	Opening 4' 9" to 5' 2"	Opening 5' 3" to 7' 8"	Opening 7' 9" to 8' 8"	Opening 8' 9" to 11' 11"	Opening 12' 0" to 13' 2"	Opening 13' 3" to 14' 0"	Length of Bolts Required for Sets Installed	
								On One Side of Wall	On Both Sides of Wall
Binders.	†4	†4	†4	†4	†4	†4	†4	Wall thickness plus 2"	Wall thickness plus 2"
*Guide Rollers.	1	1	1	1	1	1	1	Wall thickness plus 1"	Wall thickness minus 3/4"
End Track Brackets.	2	2	2	2	2	2	2	Wall thickness plus 4"	Wall thickness plus 6"
Center Track Brackets.	3	4	5	7	8	9	11	Wall thickness plus 4"	Wall thickness plus 5"
Rear Binder Hook for No. 1315 sets only.	\$1	\$1	\$1	\$1	\$1	\$1	\$1	Wall thickness plus 1"	Wall thickness minus 3/4"
Rear Binder Hook for No. 2315 sets only.	\$1	\$1	\$1	\$1	\$1	\$1	\$1	Wall thickness minus 2"	Wall thickness minus 7"
Total Bolts in Nos. 315-2 and 315-3 sets	10	11	12	14	15	16	18		
Total Bolts in Nos. 1315 and 2315 sets	11	12	13	15	16	17	19		

*Wall Bolts not required when No. 102-80 Guide Rollers are used. †Openings over 8' high require 6 bolts. §Openings over 10' high require 2 bolts.

Flat Track Fire Door Hangers

Used in Hardware Sets on Preceding Pages



No. 102-2 Hanger.
No. 303-2 Hanger is same as above except there is a hole in the top of Pendant for attaching chain.



No. 102-3 Hanger.
No. 303-3 Hanger is same as above except there is a hole in the top of Pendant for attaching chain.



No. 1102 with back plates.
No. 1303 Hanger is same as above except there is a hole in the top of Pendant for attaching chain.

- **USE**

For use with flat track fire door hardware.

- **HANGERS**

No. 102-2 for 2-ply Tin Clad and "FyeR-Ward" doors.

No. 102-3 for 3-ply Tin Clad and "FyeR-Ward" doors.

No. 1102 for "FyeR-Wall" doors.

- **INSPECTION AND APPROVAL**

Inspected by Underwriters' Laboratories, Inc., sponsored by the National Board of Fire Underwriters.

Also approved by Factory Mutual Laboratories.

- **CONSTRUCTION**

Wheels, malleable iron, 5" diameter.

Pendants, steel.

Bearings, roller.

Over-all height, 21".

No. 1102 back plates, 3½" x 9¼".

- **FINISH**

Gray enamel.

Hanger	Used with Hardware Set
102-2 102-3	102-2, 201-2, 204-2, 2102, 2104, 2201, 2204 102-3, 201-3, 204-3
1102 with Back Plates	1102, 1201, 1204
303-2	303-2, 2303, 302-3, 2302
303-3	303-3, 304-2, 304-3, 2304, 302-3, 305-2, 305-3, 2305
1303	1303, 1304, 1302, 1305

Box Track Fire Door Hardware

For Use with No. 647 "FyeR-Ward" Doors Only

• SETS

No. 2351 hardware for single sliding No. 647 doors (see pages 10-11) on incline track.

No. 2352 hardware for No. 647 sliding doors in pairs (pages 10-11) on incline track.

• USE

For sliding doors on incline track.

• INSPECTION AND APPROVAL

Included on list of fire door hardware inspected by the Underwriters' Laboratories, Inc., sponsored by the National Board of Fire Underwriters.

• OPERATION

No. 2351 — Two fusible links, one in opening exposed from both sides and one near ceiling. If either link fuses, door is released and closes by gravity.

No. 2352 — Operation is the same as above except applied to pairs of doors. One fusible link on both doors both exposed in opening, and one near ceiling. If doors are used on both sides of wall, the cord can be made to pass through the wall near the ceiling at a point where it is shown attached to wall in the illustrations and the same arrangements contained on other side. The fusing of any link releases the doors.

• HEADROOM REQUIREMENTS

No. 2351, 14½" at edge of opening toward which door closes plus ¾" for each foot of track.

No. 2352, 14½" at center of opening plus ¾" for each foot track extends beyond center of opening.

• SIDEWALL REQUIREMENTS

No. 2351, 13½" on sidewall toward which door closes and width of opening plus 21" on opposite side.

No. 2352, one-half width of opening plus 14" required on side of opening where weights are attached and one-half width of opening plus 10" on opposite side.

Note — When hardware is used on openings with steel jambs, the door(s) is made wide enough so back edge will extend 4" beyond steel jamb.

• DIRECTIONS FOR ORDERING

No. 2351 — Follow directions given for No. 2102 hardware (see page 31).

No. 2352 — Follow directions given by No. 2204 hardware (see page 37).

• COUNTERBALANCE WEIGHTS

Weights furnished regularly for openings 8' high; if opening is higher, additional weights must be purchased.



No. 2351 Hardware for No. 647 "FyeR-Ward" Doors
(See Pages 10-11.)



No. 2352 Hardware for No. 647 "FyeR-Ward" Doors.
(See Pages 10-11).

Weights, Complete Sets

Width Opening	Weight Lbs.		Width Opening	Weight Lbs.	
	2351	2352		2351	2352
3'	165	210	8½'	266	288
3½'	172	215	9'	274	303
4'	181	221	9½'	282	308
4½'	189	237	10'	292	314
5'	198	243	10½'	304	327
5½'	210	248	11'	313	338
6'	215	254	11½'	321	348
6½'	230	265	12'	331	359
7'	238	271	12½'	348	390
7½'	247	277	13'	356	396
8'	260	283	13½'	364	404
			14'	372	412

For Shipping Weights Partial Sets, and Wall Bolt Lists, see page 49.

Box (Level) Track Fire

Used with
No. 647 "FyeR-Ward" Doors Only



No. 2353 Hardware for No. 647 "FyeR-Ward" Doors.
(See Pages 10-11.)



No. 2354 Hardware for No. 647 "FyeR-Ward" Doors.
(See Pages 10-11.)

Counterbalance Weights

2353 Sets—Weights furnished regularly for openings 8' high; if opening is higher, additional weights must be purchased. Also if width of opening is equal to or greater than the height it is necessary to compound both the opening and closing weights, and an extra charge is made for the additional weights, pulleys, rope, etc. required.

2354 Sets—Weights furnished regularly for openings 8' high; if opening is higher, additional weights must be purchased.

Weights, Complete Sets

Width Opening	Weight Lbs.		Width Opening	Weight Lbs.	
	2353	2354		2353	2354
3'	180	258	9'	271	349
3½'	186	265	9½'	278	358
4'	195	273	10'	283	366
4½'	201	283	10½'	289	373
5'	206	291	11'	297	381
5½'	214	300	11½'	303	390
6'	222	308	12'	308	397
6½'	236	314	12½'	326	420
7'	242	323	13'	334	428
7½'	247	327	13½'	342	436
8'	255	335	14'	350	444
8½'	261	342			

SETS

No. 2353 hardware for single sliding No. 647 doors (pages 10-11) on level track.

No. 2354 hardware for No. 647 sliding doors in pairs (pages 10-11) on level track.

USE

Where there is insufficient headroom to place track on an incline of ¾" per foot.

No. 2354 used where there is not sufficient wall space on one side to slide a single door.

INSPECTION AND APPROVAL

Included in list of fire door hardware inspected by Underwriters' Laboratories, Inc., sponsored by the National Board of Fire Underwriters.

OPERATION

No. 2353. Two fusible links, one in opening exposed from both sides and one near ceiling. If either link fuses door(s) is released and closes by gravity.

No. 2354. Operation is the same as above except applied to pairs of doors. One fusible link on both doors and both are exposed in opening.

If doors are used on both sides of wall, the cord can be made to pass through the wall near the ceiling at a point where it is shown attached to wall in the illustrations and the same arrangements continued on other side. The fusing of any link releases the doors.

HEADROOM REQUIREMENTS

No. 2353, 14½".

No. 2354, 14½".

SIDEWALL REQUIREMENTS

No. 2353 — 14" on sidewall toward which door closes and width of opening plus 14" on opposite side.

No. 2354 — One-half width of opening plus 14" required on side having one weight and one half width of opening plus 20" required on side having two sets of weights.

Note — When hardware is used on openings with steel jambs, the door is made wide enough so back edge will extend 4" beyond steel jamb.

DIRECTIONS FOR ORDERING

Follow directions given for No. 303 (see pages 38-39).

Door Hardware

Shipping Weights, Partial Sets

Item	2351	2352	2353	2354
Automatics only, weight per set.....	34 lbs.	44 lbs.	59 lbs.	79 lbs.
Hardware, less hangers; track and brackets; binder, chafe, and roller strips, weight per set...	97 lbs.	100 lbs.	119 lbs.	165 lbs.
No. 2351 Hangers, per pair.....	11 lbs.	11 lbs.	11 lbs.	11 lbs.
*No. 232 Track with brackets, per foot.....	4 lbs.	4 lbs.	4 lbs.	4 lbs.

*Nos. 2351 and 2353 lengths equal approximately twice width of opening plus one foot.
 Nos. 2352 and 2354 lengths equal approximately width of opening plus one foot.

Wall Bolt List for Nos. 2351 and 2353 Fire Door Hardware

Number of 5/8" and 3/4" Bolts Required for Varying Widths of Doorway Openings

Machine Bolts Used to Fasten:	Openings Up to 3' 0"	Openings 3' 1" to 6' 0"	Openings 6' 1" to 6' 6"	Openings 6' 7" to 8' 0"	Openings 8' 1" to 9' 6"	Openings 9' 7" to 10' 3"	Openings 10' 4" to 12' 3"	Openings 12' 4" to 12' 9"	Openings 12' 10" to 14' 0"	Length of Bolts Required for Sets Installed	
										On One Side of Wall	On Both Sides of Wall
Binders.....	‡2	‡2	‡2	‡2	‡2	‡2	‡2	‡2	‡2	Wall thick. plus 2"	Wall thick. plus 2"
Guide Rollers.....	‡1	‡1	‡1	‡1	‡1	‡1	‡1	‡1	‡1	Wall thick. plus 1"	Wall thick. minus 3/4"
End Track Brackets.....	2	2	2	2	2	2	2	2	2	Wall thick. plus 1 1/4"	Wall thick. plus 2 1/4"
Center Track Brackets.....	4	5	7	8	9	10	11	12	13	Wall thick. plus 1 1/4"	Wall thick. plus 2 1/4"
Lock-Joint Brackets.....	..	*1	1	1	2	2	2	2	2	Wall thick. plus 1 1/4"	Wall thick. plus 2 1/4"
Rear Binders.....	‡1	‡1	‡1	‡1	‡1	‡1	‡1	‡1	‡1	Wall thick. minus 2"	Wall thick. minus 7"
Total 5/8" Bolts.....	6	*8	10	11	13	14	15	16	17		
Total 3/4" Bolts.....	4	4	4	4	4	4	4	4	4		

‡Openings over 8' 0" high require three binders.

*Wall Bolt not required when No. 102-80 Guide Rollers are used.

*Openings 3' 1" to 4' 9" do not require a lock-joint bracket; 4' 10" to 6' 0" openings require one lock-joint bracket.

‡Openings over 10' 0" high require two rear binders.

Wall Bolt List for Nos. 2352 and 2354 Fire Door Hardware

Number of 5/8" and 3/4" Bolts Required for Varying Widths of Doorway Openings

Machine Bolts Used to Fasten:	Openings Up to 6' 2"	Openings 6' 3" to 7' 2"	Openings 7' 3" to 9' 5"	Openings 9' 6" to 9' 8"	Openings 9' 9" to 12' 0"	Openings 12' 1" to 12' 8"	Openings 12' 9" to 13' 3"	Openings 13' 4" to 13' 8"	Openings 13' 9" to 14' 0"	Length of Bolts Required for Sets Installed	
										On One Side of Wall	On Both Sides of Wall
Guide Rollers.....	‡2	‡2	‡2	‡2	‡2	‡2	‡2	‡2	‡2	Wall thick. plus 1"	Wall thick. minus 3/4"
End Track Brackets.....	2	2	2	2	2	2	2	2	2	Wall thick. plus 1 1/4"	Wall thick. plus 2 1/4"
Center Track Brackets.....	6	8	10	12	10	14	16	18	16	Wall thick. plus 1 1/4"	Wall thick. plus 2 1/4"
Lock-Joint Brackets.....	..	..	..	..	*2	2	2	2	2	Wall thick. plus 1 1/4"	Wall thick. plus 2 1/4"
Rear Binders.....	‡2	‡2	‡2	‡2	‡2	‡2	‡2	‡2	‡2	Wall thick. minus 2"	Wall thick. minus 7"
Total 5/8" Bolts.....	8	10	12	14	14	18	20	22	20		
Total 3/4" Bolts.....	4	4	4	4	4	4	4	4	4		

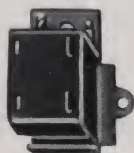
‡Wall Bolt not required when No. 102-80 Guide Rollers are used.

*Openings 9' 9" to 10' 5" do not require a lock-joint bracket; openings 10' 6" to 12' 0" require two lock-joint brackets.

‡Openings over 10' 0" high require four bolts.

Box Track Fire Door

Parts Shown on These Two Pages Are Used in
Connection with Box Type Track Shown
on the Three Preceding Pages



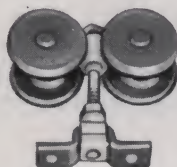
2 X 232



1 X 232



39 X 232



2351



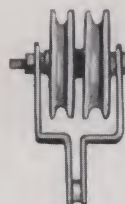
232



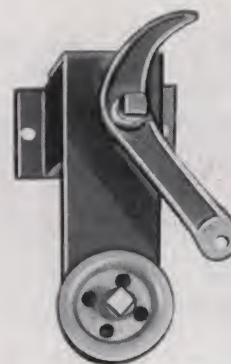
2351-87



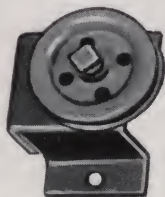
2352-5A



2352-1A



2354-86



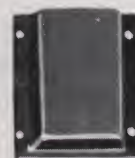
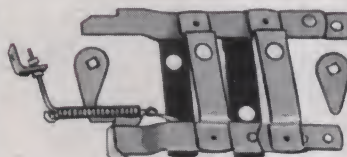
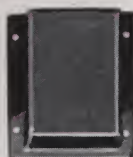
2353-86



2352-20A



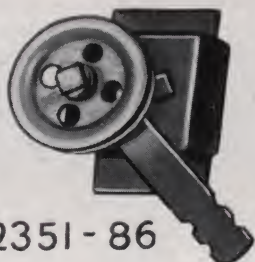
2352-21



2352-17A



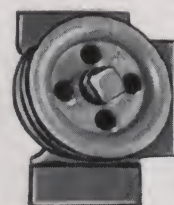
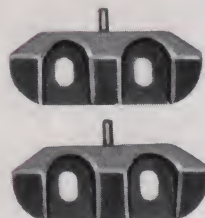
2352-3
(2 PIECES)



2351-86



2352-86



2354-87

Hardware Parts

Detail of Parts for Box Track Fire Door Hardware Illustrated on Opposite Page

Number	Description	Weight
2 x 232	Bracket.....	2 lbs. each
1 x 232	Bracket.....	2 lbs. each
39 x 232	Bracket.....	2-1/2 lbs. each
2351	Hanger.....	3-1/2 lbs. each
232	Track.....	2-3/4 lbs. per foot
2351-87	Front Bumper.....	4-1/2 lbs. each
2352-5A	Center Binder.....	6-3/4 lbs. each
2352-1A	Double Pulley.....	3 lbs. each
2354-86	Back Bumper and Pulley with 646-183 Trigger.....	8-1/4 lbs. each
2353-86	Rope Pulley and Back Bumper.....	5-3/4 lbs. each
2352-20A	Male Interlock.....	4 oz. each
2352-21	Female Interlock.....	2 oz. each
2352-17A	Latch Assembly.....	8 lbs. each
2351-86	Rope Pulley and Back Bumper with 102-93 Trigger.....	6-1/4 lbs. each
2352-86	Back Bumper with 646-183 Trigger.....	5-3/4 lbs. each
2352-3	Center Floor Stops (2 Pieces).....	2-3/4 lbs. per pair
2354-87	Rope Pulley and Back Bumper.....	7 lbs. each



**Be Sure and Check
Pages 1-2 Before
Ordering**

**Also See the Motorized
Section Pages 8-9.**

Automatic Closing Devices

Automatic Closing Devices in their entirety are not inspected by the Underwriters' Laboratories, therefore, are not labeled. The No. 97 fusible link which is a part of many closing devices is inspected by the Underwriters' Laboratories, Inc. and the No. 096 fusible link is approved by the Factory Mutual Laboratories. Due to these conditions some areas and cities have developed special requirements for automatic closing devices.

SLIDING DOOR AUTOMATIC CLOSING DEVICES

The standard types of single fusible link and double fusible link automatics are illustrated in the catalogues. The single link type consists of a fusible link projecting in front of each door, so that it will extend into the doorway when the door is open, a rope from the fusible link extending over a pulley at the back end of the track and downward to a weight holder, a set of weights sufficient to counterbalance a door on inclined track, such as Nos. 201, 1201, 2201, 204, 1204, 2204, or to counterbalance the closing weights of a level track installation, such as Nos. 303, 1303, 2303, 304, 1304, 2304, 302, 1302, 2302. A closing weight connected to one of the hangers by a chain which extends over a pulley attached to or near the front end of the track, is included in automatics for level track hardware. Single link automatics are recommended for low head room situations, where the distance from top of opening to ceiling is 3 ft. or less.

The two link automatics such as Nos. 102, 1102, 2102, include a second fusible link located near the ceiling above the center of the doorway. This second link is connected by rope or wire to a trigger which supports the counterbalance weights. If either fusible link separates the weights are dropped off, allowing the door to close.

SPECIAL AUTOMATIC CLOSING DEVICES

Typical of the Special Automatic Closing arrangements are those required by Chicago, Cincinnati, and the Pacific Coast Area. The distinguishing features as compared with the **Standard** types of automatic closing devices are given in the succeeding paragraphs, and are illustrated on the opposite page.

CHICAGO STYLE

Single Slide Inclined Track

Simple counterweight, single link, such as 201, 1201, 2201. Fusible link in center of doorway when door is open.

Compounded counterweight, multiple link, such as 102, 1102, 2102. One fusible link in center of doorway when door is open, other links over center of doorway near ceiling on both sides of wall.

Single Slide Level Track

Simple counterweight, single link such as 303, 1303, 2303, 304, 1304, 2304. Fusible link at center of doorway at all times.

CINCINNATI STYLE

Single Slide Inclined or Level Track

Compounded counterweight, single link, such as 201, 1201, 2201, 303, 1303, 2303, 304, 1304, 2304. Fusible link at center of opening at all times.

Compounded counterweight, two links such as 102, 1102, 2102. One fusible link at center of opening at all times, the other fusible link above center of doorway near ceiling.

PACIFIC STYLE

Single Slide Inclined Tracks

Simple counterweight, multiple link, such as 201, 1201, 2201. One link ahead of door projecting into doorway when door is open, other links above center of doorway near ceiling on each side of wall.

Compounded counterweight, multiple link, such as 102, 1102, 2102. One link in center of doorway when door is open, other links above center of doorway near ceiling on each side of wall.

Single Slide Level Track

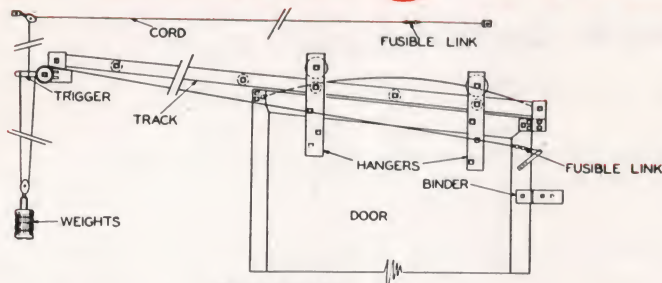
Simple counterweight, multiple link, such as 303, 1303, 2303, 304, 1304, 2304. One link at center of doorway at all times, other links above center of doorway near ceiling on each side of wall.

Triggers and pulleys of all Pacific style fixtures are bronze bushed.

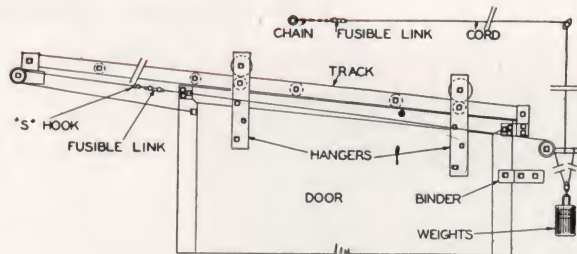
LACK OF WEIGHT SPACE FOR HORIZONTAL SLIDING DOORS

If there is insufficient space for the counterweights or closing weights at front or back of door, the weights may be dropped from side walls by means of special pulleys.

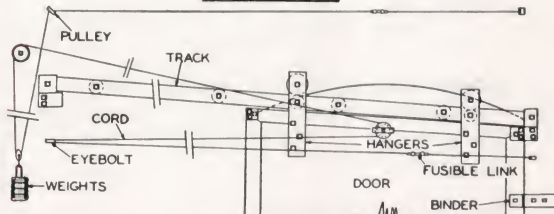
For Sliding Fire Doors



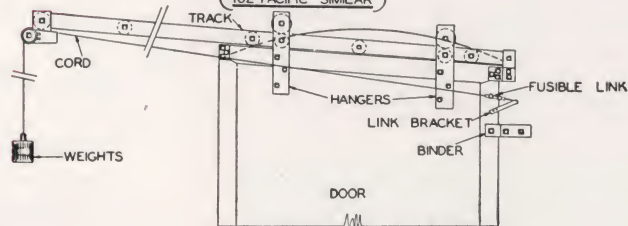
102 STANDARD



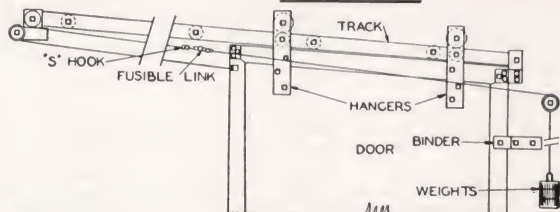
102 CHICAGO
(102 PACIFIC SIMILAR)



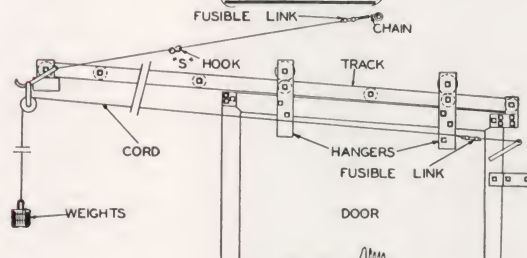
102 CINCINNATI



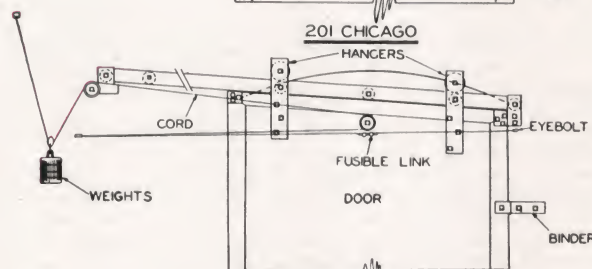
201 STANDARD
(546 ST LOUIS SIMILAR)



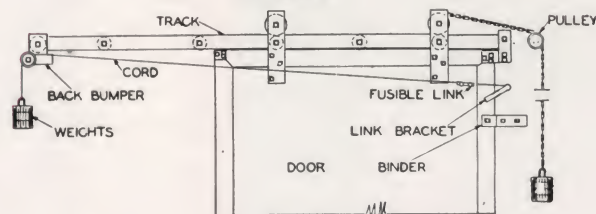
201 CHICAGO



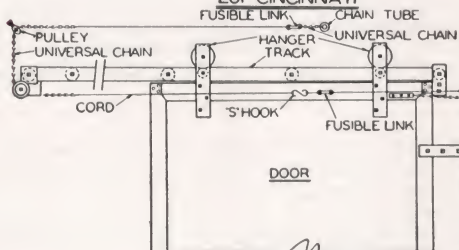
201 PACIFIC



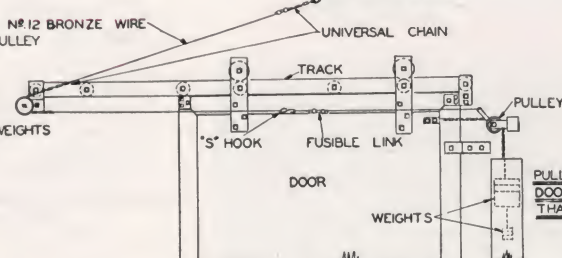
201 CINCINNATI



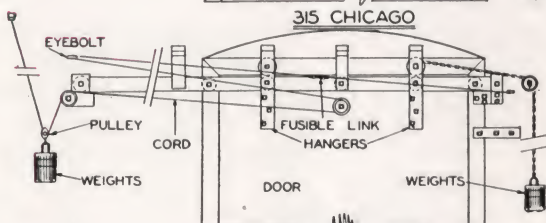
303 STANDARD



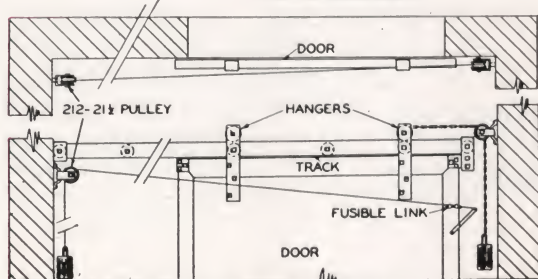
315 CHICAGO



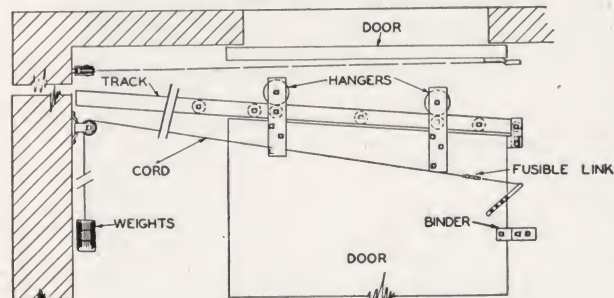
303 PACIFIC



304 CINCINNATI



303 LIMITED WALL SPACE



201 LIMITED WALL SPACE

CATALOG NUMBERS GIVEN APPLY TO HARDWARE FOR N° 446 DOORS
SAME NUMBERS WITH PREFIX 1 APPLY TO HARDWARE FOR N° 347, 447,
AND 1447 DOORS AND WITH PREFIX 2 APPLY TO HARDWARE FOR N° 647

Vertical-Lift Fire

One Section Vertical-Lift Operation



This arrangement shows hardware with one set of weights. Approved sets (Nos. 203, 1203, or 2203) for openings not over 80 sq. ft. in area, with neither height nor width exceeding 5'. Provided the openings are not used for passage of people. Non-approved sets (Nos. 103, 1103, or 2103) are available for openings from 6' high by 8' wide up to 10' high by 4' 6" wide.



This arrangement shows hardware with two sets of weights. Approved sets (Nos. 203, 1203 or 2203) for openings not over 80 sq. ft. in area, with neither height nor width exceeding 10'. Non-approved sets (Nos. 103, 1103, or 2103) are available for openings from 7' high by 12' wide, up to 12' high by 7' wide.

Approved Hardware—Nos. 203, 1203, and 2203

With One Set of Large Weights					With Two Sets of Large Weights			
Hardware Cat. No.	203-21	203-31	1203-1	2203-1	203-22	203-32	1203-2	2203-2
Using Doors No.	446-2	446-3	347	647	446-2	446-3	347	647

Approved for openings not over 20 sq. ft. in area, with neither height nor width exceeding 5'. Openings not to be used for passage of people.

Approved for openings not over 80 sq. ft. in area, with neither height nor width exceeding 10'.

Non-Approved Hardware—Nos. 103, 1103, and 2103

With One Set of Large Weights					With Two Sets of Large Weights			
Hardware Cat. No.	103-21	103-31	1103-1	2103-1	103-22	103-32	1103-2	2103-2
Using Doors No.	446-2	446-3	347	647	446-2	446-3	347	647

• HEADROOM REQUIREMENTS

Hardware with one set of large weights require height of opening plus 21½" of headroom. Hardware with two sets of large weights require height of opening plus 22½" of headroom.

• SIDEWALL REQUIREMENTS

Hardware with one set of large weights require 15" on one side and 21" on the other. Hardware with two sets of large weights require 21" on one side and 28" on the other.

All No. 203, 1203, and 2203 sets of hardware are labeled and inspected by the Underwriters' Laboratories, Inc., sponsored by the National Board of Fire Underwriters and are also approved by the Factory Mutual Laboratories. However, hardware with one set of weights is not approved for openings over 20 sq. ft. in area, with neither height nor width exceeding 5', and hardware with two sets of weights is not approved for openings over 80 sq. ft. in area with neither height nor width exceeding 10'.

Underwriters require a binder and binder pocket at the center of the top of No. 347 and No. 647 Fire Doors, otherwise door cannot be labeled.

Recommended only for openings where slide or swing hardware cannot be used on account of obstructions. The use of vertical doors in any given location should be considered in its relation to life hazards. Serious injury may be anticipated should the door operate while persons are passing under. The vertical fire doors and hardware are made to act by gravity and close automatically at the approach of fire. As shown in illustration, the fusible link is in the circuit which supports the light weights. Heavy counterbalance weights are attached by wire cable to the top of the door and are adjusted to prevent sudden dropping of the door, when link, which releases the small weights, fuses. Upper illustration shows hardware for doors using one set of large weights; lower illustration for doors using 2 sets of large weights.

• SHIPPING WEIGHTS

The weights given in table below include guides, track and hardware complete with all bolts and screws for attaching parts to door and heavy steel washers for wall bolts. If doors are used on both sides of wall, two sets will be required and the weight will be doubled. Counter-balance weights are not included in weight of hardware. Wall bolts also are not included, but will be furnished on request at moderate price if thickness of wall is given.

• DIRECTIONS FOR ORDERING

State: First — Number of openings and number of doors; whether doors are on one side or both sides of wall. If latter, mention if hardware can be bolted together and state thickness of wall. Do not say doors when you mean openings, as doors must lap 4" on each side and at top. Second — Width and height of opening (mention width first).

Third — Thickness of doors, if 2-ply Tin Clad, 3-ply Tin Clad, "FyeR-Wall" or "FyeR-Ward" doors.

Fourth — Thickness of wall, when wall bolts are required.

Fifth — Distance from edge of opening to walls at right angles, if any. State distance from highest points of openings to nearest obstructions overhead.

Heavy weights should be specified equal to ⅞th the weight of door and small weights equal to ⅙th the weight of door.

HARDWARE SETS Using 1 Set of Large Weights				HARDWARE SETS Using 2 Sets of Large Weights			
Hardware Catalog No.	Maximum Width of Opening	Maximum Height of Opening	Shipping Weight Lbs.	Hardware Catalog No.	Maximum Width of Opening	Maximum Height of Opening	Shipping Weight Lbs.
203-21	10'	*2'	147	203-22	10'	*6'	256
203-31	6' 8"	*3'	165	203-32	10'	*7'	274
1203-1 or 2203-1	5'	*4'	183	1203-2 or 2203-2	10'	*8'	292
(State which is wanted)	4'	*5'	201	(State which is wanted)	8' 10"	*9'	310
					8'	*10'	328
103-21	8'	6'	219	103-22	12'	7'	273
103-31	7'	7'	237	103-32	11'	8'	292
1103-1 or 2103-1	6'	9'	255	1103-2 or 2103-2	10'	9'	310
(State which is wanted)	5'	9'	273	(State which is wanted)	9'	10'	328
	4' 6"	10'	291		8'	11'	340
					7'	12'	358

*These sets Approved and Labeled.

When the width of the door is more than 3 times its height, special treatment is necessary to assure proper operation. Prices and working clearance in such cases, subject to special consideration by our Engineering Department.

Counterbalance weights are not included, but will be furnished at an additional price if desired.

Door Hardware

Wall Bolt List for the Numbers 203-2, 203-3 and 1203 Fire Door Hardware

Wall Bolts are not furnished with sets of fixtures regularly, but will be furnished at prevailing market prices when thickness of wall is given and customer requests them. The table below gives the number and size of bolts required for various sized openings. Note that the number of bolts is the same for hardware installed on one or both sides of wall.

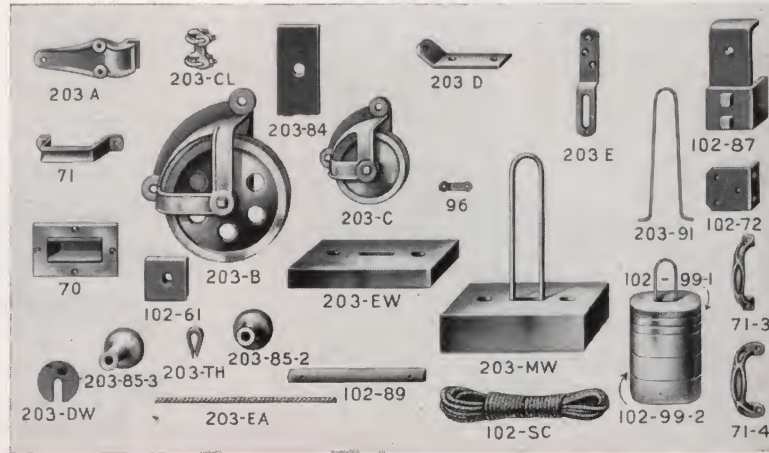


Table For Wall Bolts

Bolts Used to Fasten:	Opening up to 4' 10" high	Opening 4' 11" to 7' 6" high	Opening 7' 7" to 10' 2" high	Opening 10' 3" to 12' 10" high	Length of Bolts for:			
					No. 203-2 Hardware		No. 203-3 and 1203 Hardware	
					On One Side of Wall	Both Sides of Wall	On One Side of Wall	Both Sides of Wall
Center Track Brackets.....	10	14	18	22	Wall thickness plus 3 1/2"	Plus 4 1/2"	Wall thickness plus 4 1/2"	Plus 6"
Top Track Brackets.....	2	2	2	2	Wall thickness plus 4 1/2"	Plus 5 1/2"	Wall thickness plus 5 1/2"	Plus 7"
Cable Pulleys:								
With one set of heavy weights.....	4	4	4	4	Wall thickness plus 3"	Plus 3"	Wall thickness plus 3"	Plus 3"
With two sets of heavy weights.....	8	8	8	8	Wall thickness plus 3"	Plus 3"	Wall thickness plus 3"	Plus 3"
*Rope Pulley.....	4	4	4	4	Wall thickness plus 3"	Plus 3"	Wall thickness plus 3"	Plus 3"
Total 3/4" Bolts in sets for doors less than 300 lbs....	16	20	24	28	Note: Wall bolts for No. 2203 differ slightly from this list.			
Total 5/8" Bolts in sets for doors less than 300 lbs....	4	4	4	4				
Total 3/4" Bolts in sets for doors 300 lbs. and over...	20	24	28	32				
Total 5/8" Bolts in sets for doors 300 lbs. and over...	4	4	4	4				

*NOTE: All track and cable pulley bolts are 3/4" diameter. Rope pulley bolts are 5/8" diameter.

TWO-SECTION VERTICAL-LIFT DOORS

• SETS

No. 402 for Tin Clad doors.

No. 1402 for "FyeR-Wall" doors.

No. 2402 for "FyeR-Ward" doors.

• USE

For use where there is not sufficient sidewall space for sliding doors, nor headroom enough for one section (No. 203 type) vertical doors.

• HEADROOM REQUIREMENTS

One-half height of opening plus 19".

• SIDEWALL REQUIREMENTS

Doors weighing less than 300 pounds, 22" beyond doorway on side where large weight occurs and 16" on opposite side.

Doors weighing 300 pounds or more, 22" on one side and 30" on other side.

• DIRECTIONS FOR ORDERING

Give width and height of opening, available space above doorway, space on each side of doorway, kind of doors and thickness of wall.

State if weights and weight boxes are to be furnished at extra cost with hardware.



Single Swinging, Labeled



No. 2406 Hardware with No. 647
Flush Door in Channel Frame.



No. 406 Hardware with No. 446
Tin Clad Flush Door in Angle
Frame in Face of Wall.



No. 2406 Hardware with No. 647
Flush Door in Rabbeted
Angle Frame

- **SETS**

No. 406 for Tin Clad doors.

No. 1406 for "FyeR-Wall" doors.

No. 2406 for "FyeR-Ward" doors.

Any of these doors can be mounted in any of the ways illustrated here.

- **USE**

For locations requiring swing doors because of space limitations.

- **INSPECTION AND APPROVAL**

Included in the list of fire door hardware inspected by Underwriters' Laboratories, Inc., sponsored by the National Board of Fire Underwriters, and is also approved by the Factory Mutual Laboratories.

- **HEADROOM REQUIREMENTS**

9" above top of door (not opening).

- **SIDEWALL REQUIREMENTS**

On hinge side:

11" beyond door (not opening).

On latch side:

4" beyond door (not opening).

- **OPERATION**

Automatic link and cord extends above opening to ceiling and when used with doors on both sides of wall, the cord extends through, so the fusing of link on either side will cause doors to close.

- **SHIPPING WEIGHTS**

Hardware furnished for lap doors, for either flush doors in brick rabbets, in rabbeted angle frame, or in angle frames, or for flush doors in channel frames.

If doors are used on both sides of wall, two sets of hardware will be required.

Weights for Hardware for Any Type Door Frame

Height of Doors	Up to 5' 9"	5' 10" to 8' 9"	8' 10" to 12' 9"	12' 10" to 14' 4"
Weight, Complete Sets..	90 lbs.	130 lbs.	150 lbs.	168 lbs.
Weight Hardware, less Automatics.....	60 lbs.	100 lbs.	114 lbs.	138 lbs.
Weight, Automatics only	30 lbs.	30 lbs.	30 lbs.	30 lbs.
Kind of Latches.....	Double	Triple	Quadruple	Quintuple

Fire Door Hardware

• DIRECTIONS FOR ORDERING

State: First — Number of openings and number of doors, whether doors are on one side or both sides of wall. If latter, mention if fixtures can be bolted together and state thickness of wall.

Second — Width and height of opening (mention width first). Do not say doors when you mean openings.

Third — Are doors to lap the wall, to be mounted in angle iron frame on the face of the wall, in channel frames or are doors to be mounted in rabbeted frames or in brick rabbets?

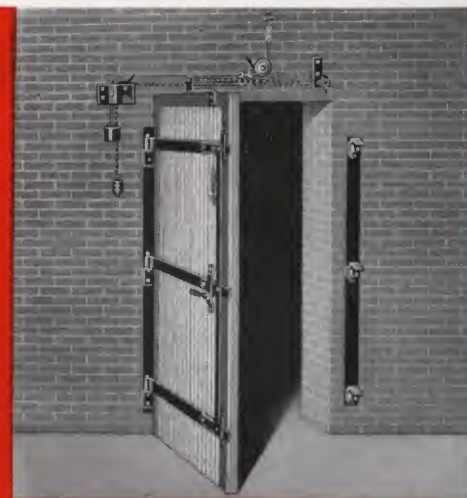
Fourth — Thickness of doors, if 2-ply Tin Clad, 3-ply Tin Clad, "FyeR-Wall" sheet metal doors or "FyeR-Ward" flat surface steel doors.

Fifth — Thickness of wall when wall bolts are required.

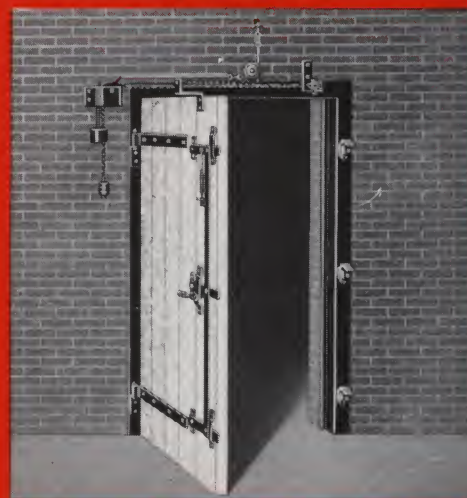
Sixth — Distance from edge of opening to walls at right angles, if any. State distances from highest points of openings to nearest obstructions overhead.

Seventh — Is opening square or arched top?

This hardware requires 9" of headroom above top of door (not openings), 11" of sidewall space beyond door on hinge side and 4" on latch side. Detail of parts shown on page 60.



No. 1406 Hardware with "FyeR-Wall" No. 347 Corrugated Sheet Metal Lap Door.



No. 2406 Hardware with No. 647 "FyeR-Ward" Flush Door in Angle Iron Frame in Face of Wall.

Wall Bolt List for Nos. 406-2, 406-3, 1406, 2406 Fire Door Hardware
NUMBER AND LENGTH OF 3/4-INCH BOLTS REQUIRED FOR VARYING SIZES OF DOORS

Bolts Are Used to Fasten:	Door															Length of Bolts Required for Sets Installed	
	1' 5" to 6' 2" wide 4' 6" to 5' 3" high	1' 5" to 5' 0" wide 5' 4" to 5' 9" high	1' 5" to 5' 0" wide 5' 10" to 6' 3" high	1' 5" to 4' 0" wide 6' 4" to 7' 3" high	6' 3" to 8' 10" wide 4' 6" to 5' 3" high	5' 1" to 8' 10" wide 5' 4" to 5' 9" high	5' 1" to 8' 10" wide 5' 10" to 6' 3" high	4' 1" to 8' 10" wide 6' 4" to 7' 3" high	1' 5" to 8' 10" wide 7' 4" to 8' 3" high	1' 5" to 5' 0" wide 8' 4" to 8' 9" high	Door: 5' 1" to 8' 10" wide 8' 4" to 8' 9" high	Door: 1' 5" to 5' 0" wide 8' 10" to 9' 3" high	Door: 5' 1" to 8' 10" wide 8' 10" to 9' 3" high	Door: 1' 5" to 8' 10" wide 9' 4" to 12' 3" high	Door: 1' 6" to 7' 8" wide 12' 4" to 14' 4" high	On One Side of Wall	On Both Sides of Wall
For 406-2, 406-3, 1406 and 2406 Hardware																	
406-22-2 Keeper for 2-ply Tin Clad and "FyeR-Ward" lap doors.....	2	2	3	3	2	2	3	3	3	3	3	4	4	4	5	Thickness of wall plus 5½"	Thickness of wall plus 8½"
406-22-3 Keeper for 3-ply Tin Clad lap doors.....	2	2	3	3	2	2	3	3	3	3	3	4	4	4	5	Thickness of wall plus 6½"	Thickness of wall plus 10"
1406-22 Keeper for "FyeR-Wall" sheet metal lap doors.....	2	3	3	3	2	3	3	3	3	4	4	4	4	4	5	Thickness of wall plus 6½"	Thickness of wall plus 10½"
406-10 Keeper for 2- or 3-ply Tin Clad and "FyeR-Ward" doors in brick rabbets...	2	2	3	3	2	2	3	3	3	3	3	4	4	4	5	Thickness of wall plus 3½"	Thickness of wall plus 4"
1406-10 Keeper for "FyeR-Wall" sheet metal doors in brick rabbets.....	2	3	3	3	2	3	3	3	3	4	4	4	4	4	5	Thickness of wall plus 3½"	Thickness of wall plus 4½"
406-33 Pintles for all lap doors.....	2	2	2	2	3	3	3	3	3	3	4	3	4	4	5	Thickness of wall plus 2½"	Thickness of wall plus 2½"
406-11 Pintles for all doors in brick rabbets	2	2	2	2	3	3	3	3	3	3	4	3	4	4	5	Thickness of wall plus 2½"	Thickness of wall plus 2½"
Total bolts in 406-2, 406-3 and 2406 sets...	4	4	5	5	5	5	6	6	6	6	7	7	8	8	10		
Total bolts in 1406 sets.....	4	5	5	5	5	6	6	6	6	7	8	7	8	8	10		

Pair Swinging, Labeled



No. 506 Hardware with No. 446
Tin-Clad Flush Doors in
Channel Frame.



No. 2506 Hardware with No. 647
Flush Doors in Angle
Frame on Face of Wall.



No. 506 Hardware with No. 446
Tin-Clad, Flush Doors in Rabbeted
Angle Frame.

- **SETS**

No. 506 for Tin-Clad doors.

No. 1506 for "FyeR-Wall" doors.

No. 2506 for "FyeR-Ward" doors.

Any of these doors can be mounted in any of the ways illustrated here.

- **USE**

For pairs of swinging doors.

- **INSPECTION AND APPROVAL**

Included in the list of fire door hardware and inspected by Underwriters' Laboratories, Inc., sponsored by the National Board of Fire Underwriters and is also approved by the Factory Mutual Laboratories.

- **HEADROOM REQUIREMENTS**

10" above top of door (not opening).

- **SIDEWALL REQUIREMENTS**

11" on each side of doors (not opening).

- **OPERATION**

Automatic link and cord arrangement of this hardware extends above opening to ceiling and when used with doors on both sides of wall, cord extends through wall so that fusing of link on either side will cause the doors to close.

Fire Door Hardware

• DIRECTIONS FOR ORDERING

State: First — Number of openings and number of doors, whether doors are on one side or both sides of wall. If latter, mention if fixtures can be bolted together and state thickness of wall.

Second — Width and height of opening (mention width first). Do not say doors when you mean openings.

Third — Are doors to lap wall, to be mounted in angle iron frame on the face of the wall, in channel frames or are doors to be mounted in rabbeted angle frames or in brick rabbets?

Fourth — Thickness of doors, if 2-ply Tin Clad, 3-ply Tin Clad, "FyeR-Wall" sheet metal doors, or "FyeR-Ward" flat surface steel doors.

Fifth — Thickness of wall when wall bolts are required.

Sixth — Distance from edge of opening to walls at right angles, if any. State distances from highest points of openings to nearest obstructions overhead.

Seventh — Is opening square or arched top?

Detail of parts shown on page 60.

• SHIPPING WEIGHT

Hardware furnished for lap doors, for either flush doors in brick rabbets, in rabbeted angle frame, or in angle frames, or for flush doors in channel frames. If doors are used on both sides of wall, two sets of hardware will be required.

Weights for Hardware for Any Type Door Frame

Height of Doors	Up to 5' 9"	5' 10" to 8' 9"	8' 10" to 12' 9"	12' 10" to 14' 4"
Weight, Complete Sets..	166 lbs.	220 lbs.	280 lbs.	340 lbs.
Weight Hardware, less Automatics.....	102 lbs.	156 lbs.	211 lbs.	216 lbs.
Weight, Automatics only	64 lbs.	64 lbs.	64 lbs.	64 lbs.
Kind of Latches.....	Double	Triple	Quadruple	Quintuple

Wall Bolt List for Nos. 506-2, 506-3, 1506, and 2506 Fire Door Hardware NUMBER AND LENGTH OF 3/4-INCH BOLTS REQUIRED FOR VARYING SIZES OF DOORS

Bolts Are Used to Fasten:	Door 1' 5" to 6' 2" wide 4' 6" to 5' 3" high	Door 1' 5" to 5' 0" wide 5' 4" to 5' 9" high	Door 1' 5" to 5' 0" wide 5' 10" to 6' 3" high	Door 1' 5" to 4' 0" wide 6' 4" to 7' 3" high	Door 6' 3" to 8' 10" wide 4' 6" to 5' 3" high	Door 5' 1" to 8' 10" wide 5' 4" to 5' 9" high	Door 5' 1" to 8' 10" wide 5' 10" to 6' 3" high	Door 4' 1" to 8' 10" wide 6' 4" to 7' 3" high	Door 1' 5" to 8' 10" wide 7' 4" to 8' 3" high	Door 1' 5" to 5' 0" wide 8' 4" to 8' 9" high	Door 5' 1" to 8' 10" wide 8' 4" to 8' 9" high	Door 1' 5" to 5' 0" wide 8' 10" to 9' 3" high	Door 5' 1" to 8' 10" wide 8' 10" to 9' 3" high	Door 1' 5" to 8' 10" wide 9' 4" to 12' 3" high	Door 1' 6" to 7' 8" wide 12' 4" to 14' 4" high	Length of Bolts Required for Sets Installed		
																On One Side of Wall	On Both Sides of Wall	
For 506-2, 506-3, 1506 and 2506 Fixtures																		
406-33 Pintles for all lap doors.....	4	4	4	4	6	6	6	6	6	6	8	6	8	8	10		Thickness of wall plus 2½"	Thickness of wall plus 2½"
406-11 Pintles for all doors in brick rabbets	4	4	4	4	6	6	6	6	6	6	8	6	8	8	10		Thickness of wall plus 2½"	Thickness of wall plus 2½"
Total bolts in 506-2, 506-3, 1506 and 2506 sets.....	4	4	4	4	6	6	6	6	6	6	8	6	8	8	10			

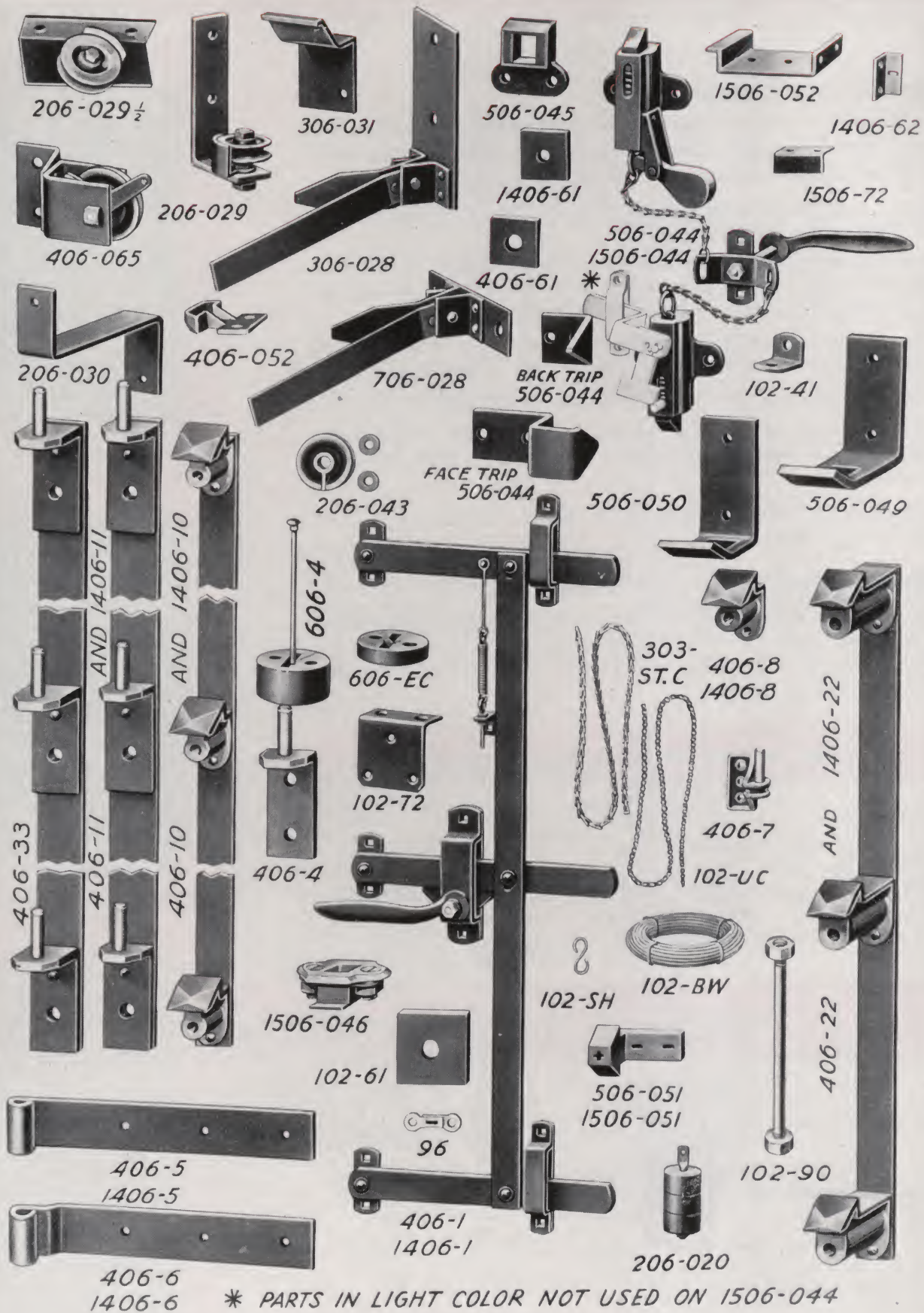


No. 1506 Hardware with "FyeR-Wall" No. 347 Corrugated Sheet Metal Lap Door.



No. 2506 Hardware with No. 647 "FyeR-Ward" Flat Surface Steel Doors Flush in Channel Frame.

Parts for Nos. 406, 1406, 2406, 3406



506, 1506 and 2506 Hardware

For Swinging Doors Illustrated on Pages 56-59

No.	Description	Weight
96	Fusible Links, each	1/2 oz.
102-41	Rope Angle, each	3 oz.
102-61	Steel Washers (as required). Packed only with lap door fixtures, each	1 lb. 2 oz.
102-72	Bumper Shoe, each	6 oz.
102-90	Chain Tube (only when fixtures are used on both sides of wall), each	2 lbs.
102-BW	Bronze Wire, per foot	1/2 oz.
102-UC	Universal Chain, per foot	1 oz.
102-SH	S-Hook, each	1/4 oz.
206-020	Weight (3 small) with weight holder, each set	2 lbs. 7 oz.
206-029	Chain Pulley, each	3 lbs. 8 oz.
206-029 1/2	Chain Pulley (for low headroom), each	3 lbs. 8 oz.
206-030	Chain Angle, each	1 lb. 12 oz.
206-043	Center Pulley, each	1 lb.
303-STC	Sash Chain, per foot	3 oz.
306-028	Door Control, each	7 lbs. 8 oz.
306-031	Door Control Lifter, each	1 lb. 8 oz.
406-065	Pulley and Trip, complete, each	5 lbs. 3 oz.
406-61	Washers (as required). Packed only with fixtures for doors in brick rabbets, each	12 oz.
	Double Latches, 30", 36", 42" centers	
	Triple Latches, 24", 27", 30", 33", 36", 39" centers	
	Quadruple Latches, 28", 30", 32", 34", 38", 42" centers	
	Quintuple Latches, 27", 28 1/2", 30", 31 1/2", 33", 34 1/2", 36", 37 1/2" centers	
406-4	Pintles for flush doors in angle iron frames on the face of the wall or channel frames, per pair	2 lbs. 7 oz.
406-5	†Hinge Straps (see note), per pair	14 lbs.
1406-5	†Hinge Straps (see note), per pair	14 lbs.
406-6	†Hinge Straps for doors in brick rabbets (see note), per pair	13 lbs.
1406-6	†Hinge Straps for doors in brick rabbets (see note), per pair	13 lbs.
406-7	Pintle for flush doors in rabbeted frames, per pair	1 lb. 12 oz.
406-8	Keepers for flush doors with angle iron frames on the face of the wall or channel frames, each	1 lb.
1406-8	Keepers for flush doors with angle iron frames on the face of the wall or channel frames, each	1 lb. 7 oz.
406-052	Keepers for doors in rabbeted angle frames	1 lb. 10 oz.
506-051	Keepers for Double, Triple, Quadruple, or Quintuple Latch	1 lb. 5 oz.
1506-051	Keepers for Double, Triple, Quadruple, or Quintuple Latch	1 lb. 6 oz.
	Double Keepers, 30", 36", 42" centers	10 lbs. 8 oz.
	Triple Keepers, 24", 27", 30", 33", 36", 39" centers	17 lbs. 8 oz.
	Quadruple Keepers, 28", 30", 32", 34", 38", 42" centers	26 lbs. 5 oz.
	Quintuple Keepers, 27", 28 1/2", 30", 31 1/2", 33", 34 1/2", 36", 37 1/2" centers	31 lbs. 12 oz.
	Double Keepers, 30", 36", 42" centers	4 lbs. 12 oz.
	Triple Keepers, 24", 27", 30", 33", 36", 39" centers	11 lbs. 8 oz.
	Quadruple Keepers, 28", 30", 32", 34", 38", 42" centers	17 lbs. 12 oz.
	Quintuple Keepers, 27", 28 1/2", 30", 31 1/2", 33", 34 1/2", 36", 37 1/2" centers	21 lbs. 5 oz.
	Double Pintle, 36", 48", 60" centers	13 lbs. 12 oz.
	Triple Pintle, 18", 24", 30", 36", 42" centers	25 lbs. 7 oz.
	Quadruple Pintle, 28", 32", 36", 40" centers	35 lbs.
	Quintuple Pintle, 33", 36" centers	42 lbs. 8 oz.
1406-61	Hinge Washer (one for each hinge), each	11 oz.
1406-62	Hinge Angle (one for each hinge), each	9 oz.
506-044-2	Top and Bottom Bolt for standing door, each	8 lbs. 6 oz.
506-044-3	Top and Bottom Bolt for standing door, each	8 lbs. 14 oz.
1506-044	Top and Bottom Bolt for standing door, each	8 lbs.
506-044	Back Trip, each	14 oz.
506-044	Face Trip (for outside doors only), each	2 lbs. 1 oz.
506-045	Keeper for top standing door bolt (partition walls only), each	1 lb. 5 oz.
1506-046	Keeper for bottom standing door bolt, each	1 lb. 8 oz.
506-049-2	Keeper for top standing door bolt (lap doors on outside walls only), each	4 lbs. 12 oz.
506-049-3	Keeper for top standing door bolt (lap doors on outside walls only), each	5 lbs. 6 oz.
506-050	Keeper for top standing door bolt (flush doors on outside walls only), each	3 lbs.
1506-052	Bolt Attachment Plate, each	1 lb. 3 oz.
1506-72	Bumper Shoe, each	9 oz.
606-4	Weight, each	6 lbs. 4 oz.
606-EC	Extra Weight, each	1 lb. 13 oz.
706-028	Door Control (for low headroom), each	6 lbs. 14 oz.
	Package of Screws and Bolts	

†Hinges made in standard lengths as follows: 19", 22", 25", 28", 31", 34", 37", 40", 43", 46", and 49".

Nos. 606 and 706 Swinging

This Type Hardware Cannot be Applied to Sheet Metal No. 647 or 347 Doors



No. 606 Hardware Applied to No. 446 Tin Clad Door.



No. 706 Hardware Applied to No. 446 Tin Clad Door.

• SETS

No. 606 for single swinging doors.
No. 706 for swinging doors in pairs.
Both sets for 2- or 3-ply No. 446 Tin Clad doors.

• USE

Designed as an inexpensive installation which will meet the requirements of Underwriters' in certain territories. For conditions which do not permit attaching of pulleys on the wall because of insufficient headroom and lack of space between door and adjoining wall.

• HEADROOM REQUIREMENTS

No. 606 — Flush doors require no headroom. Lap doors require no headroom above door (not doorway).
No. 706 — Flush doors, 3½" above top of opening. Lap doors, 3½" above top of door (not opening).

• SIDEWALL REQUIREMENTS

No. 606 — Flush doors, 3½" on each side of doorway. Lap doors, 3½" on each side beyond door (not doorway).
No. 706 — Flush doors, 3½" on each side of doorway. Lap doors, 3½" on each side beyond doors (not opening).

• OPERATION

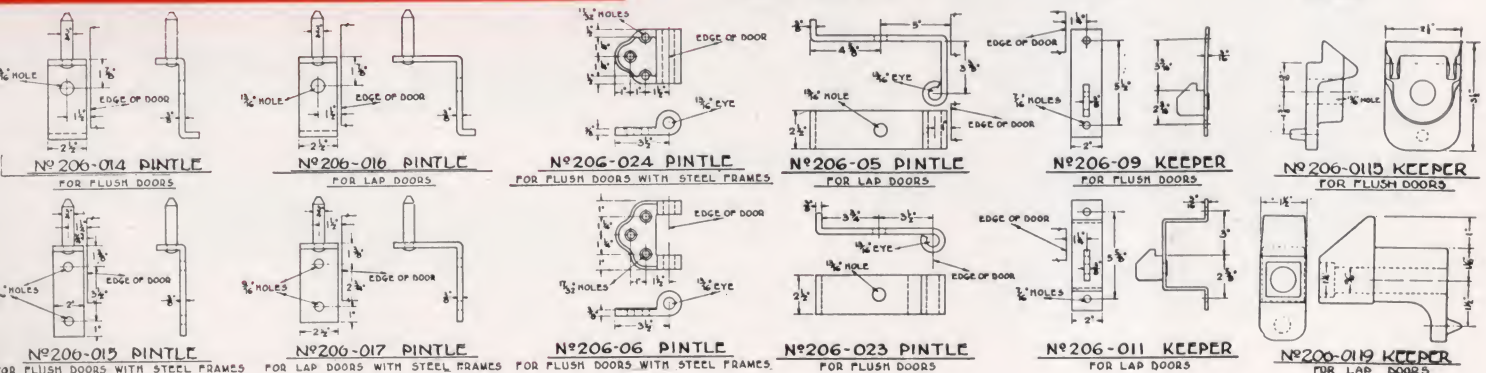
When link fuses at 160° F. it releases the heavy weight which drops onto the small weight and closes the door. Small weight merely maintains tension of chain. No. 706 hardware is so constructed that it is impossible for wrong door to close first. To conform strictly to Underwriters' requirements, triple latch bar is always furnished. Single bar latch can be furnished on application. Hardware furnished for either flush or lap door.

• DIRECTIONS FOR ORDERING

Give all directions asked for on No. 406 hardware. State if top and bottom bolt is required. Types of frames on pages 20-23.

Shipping Weights

For Doors	No. 606-2 or 3	No. 706-2 or 3
Up to 5' 9" high	(2 hinges) 70 lbs.	(4 hinges) 133 lbs.
5' 10" to 8' 9" high	(3 hinges) 80 lbs.	(6 hinges) 153 lbs.
8' 10" to 12' 9" high	(4 hinges) 90 lbs.	(8 hinges) 173 lbs.
Automatics only	26 lbs.	62 lbs.



Fire Door Hardware

No. 96 Fusible Link
 No. 102-41 Rope Angle
 No. 102-61 Steel Washers (as required)

No. 102-72 Bumper Shoe
 No. 102-SC Sash Cord
 No. 206-09 Latch Keeper for doors in pairs

§No. 206-011-2 Latch Keeper for 2-ply single lap doors
 §No. 206-011-3 Latch Keeper for 3-ply single lap doors
 No. 206-020 Weight (3 small) with weight holder

No. 206-0115 Latch Keeper for single flush doors
 §No. 206-0119-2 Latch Keeper for 2-ply single lap doors
 §No. 206-0119-3 Latch Keeper for 3-ply single lap doors

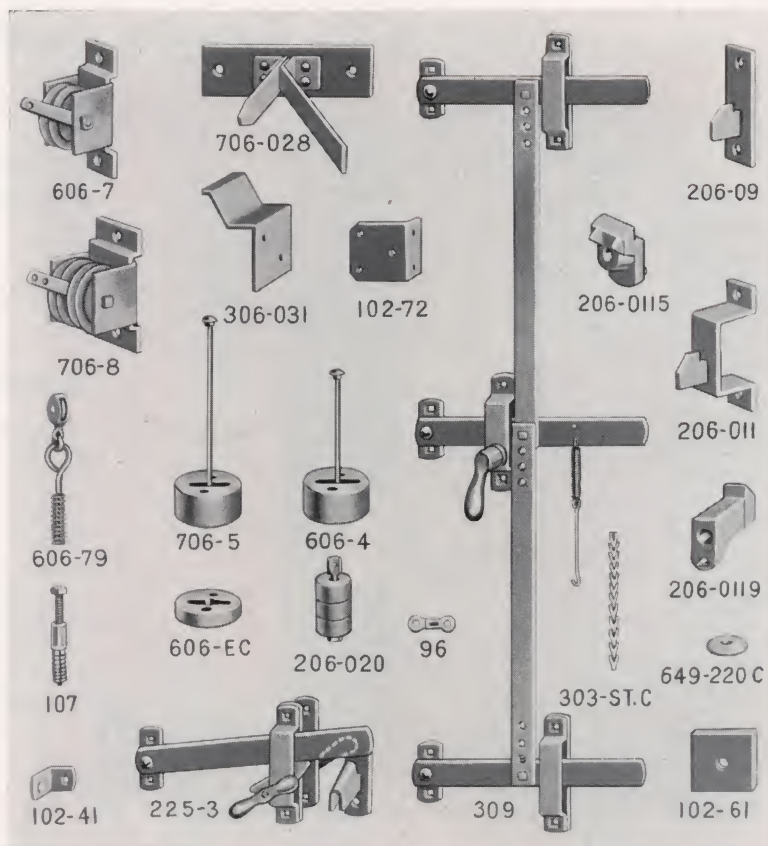
†No. 225-3 Single Latch
 No. 303-STC Sash Chain
 ‡No. 309 Triple Latch (with flush or lap door keepers)

No. 606-4 Weight, 5½ pounds
 No. 606-7 Pulley and Trip
 No. 606-79 Screw Eye and Pulley

No. 606-EC Extra Weights
 No. 649-220-C—2½" diameter Cast Washers for No. 206-0115 or No. 206-0119 Keepers

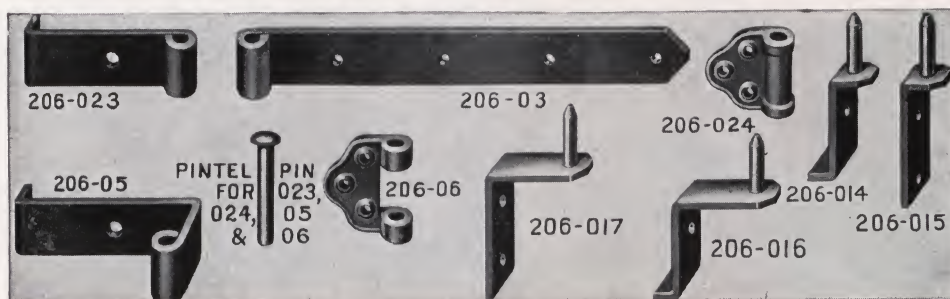
No. 706-8 Pulley and Trip
 No. 706-5 Weight
 No. 706-028 Door Control

No. 306-031 Door Control Lifter
 Package of Screws and Bolts



NOTE — Keeper Shown with No. 225-3 Latch is Used for Doors in Pairs. No. 206-0115 Used for Single Doors.

Details of Pintles and Hinges for Swing Hardware



No. 206-03 Hinge Straps, 12"
 No. 206-03 Hinge Straps, 15"
 No. 206-03 Hinge Straps, 18"

No. 206-03 Hinge Straps, 21"
 No. 206-03 Hinge Straps, 24"
 No. 206-03 Hinge Straps, 30"

No. 206-03 Hinge Straps, 36"
 No. 206-03 Hinge Straps, 42"
 No. 206-03 Hinge Straps, 48"

No. 206-05-2 Hinge Pintles with pintle pins (for 2-ply lap door only)
 No. 206-05-3 Hinge Pintles with pintle pins (for 3-ply door only)
 No. 206-06 Hinge Pintles with pintle pins (flush doors, angle iron frames)

No. 206-014 Hinge Pintles (flush doors, masonry walls)
 No. 206-015 Hinge Pintles for flush doors with angle iron or channel iron frames
 No. 206-016-2 Hinge Pintles for 2-ply lap doors, masonry walls

No. 206-016-3 Hinge Pintles for 3-ply lap doors, masonry walls
 No. 206-017-2 Hinge Pintles for 2-ply lap doors with angle iron or channel iron frames
 No. 206-017-3 Hinge Pintles for 3-ply lap doors with angle iron or channel iron frames

No. 206-023 Hinge Pintles with pintle pins (flush doors)
 No. 206-024 Hinge Pintles with pintle pins (flush doors, angle iron frames)

†No. 309 Triple Latch is packed regularly but No. 225-3 Single Latch will be substituted when so ordered.

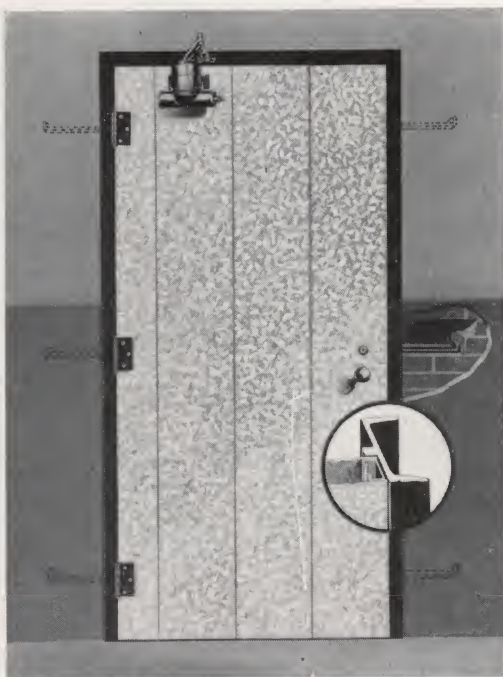
‡Connecting bars made in five lengths, i.e., 24" adjustable for doors 4' 3" to 6' high; 30" adjustable for doors 5' 6" to 7' high; 36" adjustable for doors 6' 6" to 8' high; 42" adjustable for doors 7' 6" to 9' high; 48" adjustable for doors 8' 6" to 10' high. Two connecting bars are furnished with each latch.

§No. 206-0119 Keepers are furnished regularly but No. 206-011 will be substituted when so ordered.

The angle at which Swing Fire Doors should stand open should not be more than 100 degrees

R-W No. 1647, A Complete

Featuring the Attractive No. 647 "FyeR-Ward" Door[®]



Single Swing Door Mounted in Channel Frame. (Left Hand Door Shown).



Pair of Swinging Doors with Strap Hinges. (Active Door — Left Hand Shown).

- **USE**

FOR SWINGING DOORS ONLY

This combination is acceptable for Class B, C, D, or E opening.

- **INSPECTION AND APPROVAL**

Inspected by Underwriters' Laboratories, Inc., sponsored by National Board of Fire Underwriters. Also approved by Factory Mutual Laboratories.

Doors can only be labeled with hardware listed on page 65. Single swinging doors may be labeled for openings not exceeding 4' x 8'; pairs of doors for openings not exceeding 8' x 8'. For openings over these dimensions . . . where a label is desired, "3 point latches" must be used . . . refer to pages 56-59.

- **CONSTRUCTION**

Same as No. 647 door (see page 10). No. 1647 is used to designate type of hardware used.

Doors mortised or reinforced at factory for all hardware such as hinges, locking bolts, locks, latches and door closers.

- **WEIGHT**

Per square foot, 5 lbs.

Outstanding Features

- A 100% Richards-Wilcox Door and Hardware Installation. All made for each other.
- Available in many combinations. . . There's one to fit any location.
- Available for Class B, C, D and E openings.

Labeled Fire Door Installation

● HARDWARE

Hinges: Three hinges are furnished for all doors but on large openings one hinge is furnished for each 30" or fraction thereof of door height. Hinges available are No. 502 Half Surface Butt Hinges 4½" high, No. 1035BB Strap Hinges 12" or longer or No. 135 Butt Hinges which may be used in channel frames only.

Doors may be provided with mortise latch (No. 681) or lock (No. 680) having a throw of ¾". When ordering lock with one cylinder specify if cylinder is to be on hinge side or far side. These doors are made in accordance with the Underwriters' standards. Flush Bolts (No. 1116½) are a heavy type which may be mortised into the face near edge of the doors as desired. No. 643-N door closers available for use on these doors. Sizes as required.

NOTE

The No. 1647 door combination mounted with the type of hardware illustrated to the right cannot be labeled for Class A opening which are openings in walls between separate sections of buildings, such as fire walls.

When No. 647 doors are mounted in Class A openings in fire walls, the heavy standard fire door hardware must be used in order to permit the application of a Class A label.

See pages 56 to 59 for this type of hardware.

Richards-Wilcox

OFFERS YOU

The Most Comprehensive Line of
Fire Doors and Hardware Made.

● R-W FIRE DOORS

● R-W FIRE DOOR HARDWARE

● R-W FUSIBLE LINKS



No. 1116½



Doors may be equipped with a door check (R-W No. 643-N above).



R-W No. 681 Latch.
Has ¾" throw.



R-W No. 680 Lock. Has ¾" Throw. When ordering lock with one cylinder, specify if cylinder is to be on hinge side or far side.



No. 135 Butt Hinge



No. 502 Half Surface Butt Hinge



No. 1035 BB (Ball Bearing) Strap Hinge

Automatic Closing Devices

SWINGING DOOR AUTOMATIC CLOSING DEVICES

The standard types such as 406, 1406, 2406, 506, 1506, 2506 are illustrated in this catalog. They consist of a chain attached to each door, passing over pulleys attached to the wall and with a small weight attached to the free end of the chain to keep the chain taut; a pulley and trip attached to the wall at hinged side of each door; a fusible link above the center of each door connected by wire to the trigger of the pulley and trip; another fusible link over center of doorway near ceiling; a drop off weight to pull the door shut when links fuse. Fusing of either link will cause doors to close, see page 67. All of the illustrations show single swinging doors but similar arrangements can be used on pairs of swinging doors.

CHICAGO STYLE

Same as the standard except that provision for another fusible link on the opposite side of the wall is included.

PACIFIC STYLE

Same as the standard except that provision for another fusible link on the opposite side of the wall is included and pulleys and triggers are bronze bushed.

ALTERNATE ARRANGEMENTS

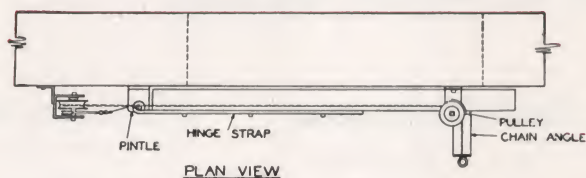
The standard location of pulley and trip for swinging fire doors is at the hinged side of the door but when there is insufficient space, alternates may be followed, such as are illustrated on page 67:

- (a) Install pulley and trip at latch side of doorway.
- (b) Install pulley and trip on side wall adjacent to hinged side of door, by means of an extra double sheave pulley.
- (c) Install pulley and trip on a side wall adjacent to the latch side of door, by means of an extra double sheave pulley.
- (d) Install pulley and trip on opposite side of wall.
- (e) Use No. 606 or 706 type of automatic closing device instead of No. 406 or No. 506.
- (f) Automatic closing devices are usually so designed that doors can open to a position at right angles to the wall or slightly beyond, but in rare cases it is important to have the door swing to a position approximately parallel with the wall. This can be done as shown at the lower left corner of page 67.

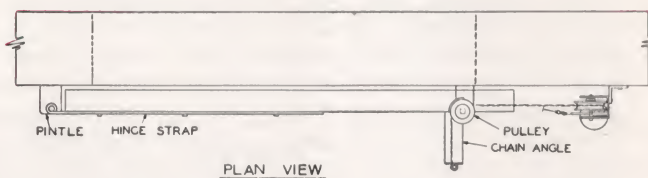
LACK OF CLEARANCE FOR VERTICAL DOOR WEIGHTS

If there is insufficient side wall space for weights for vertical sliding fire doors, all weights may be installed on one side of the door instead of installing part of the weights on each side of door, but the same number of pulleys must be used.

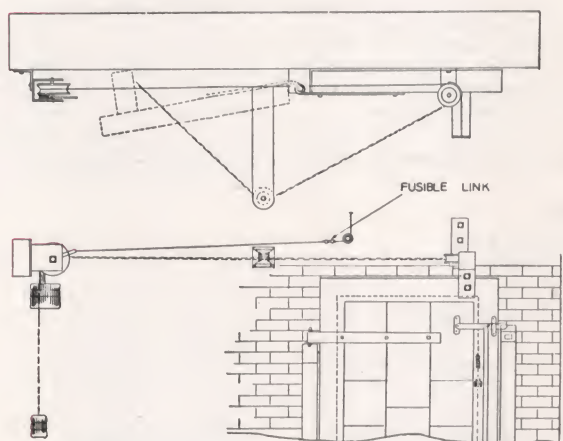
For Swinging Fire Doors



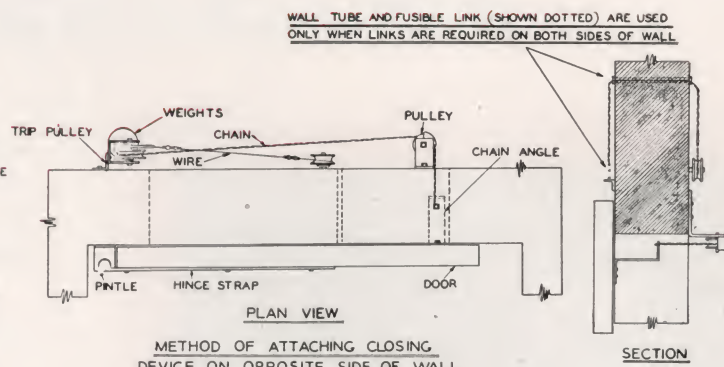
STANDARD METHOD OF ATTACHING
CLOSING DEVICE AT PINTLE SIDE OF DOOR



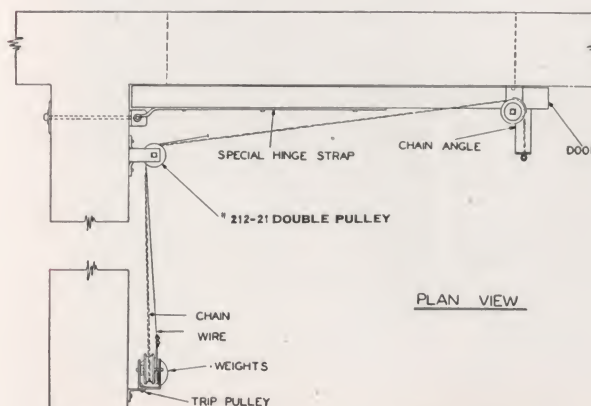
METHOD OF ATTACHING CLOSING DEVICE AT LATCH SIDE
OF DOOR WHEN SPACE IS INSUFFICIENT AT PINTLE SIDE



METHOD OF INSTALLING CLOSING DEVICE WHEN IT IS
ESSENTIAL TO HAVE DOOR OPEN PARALLEL TO WALL

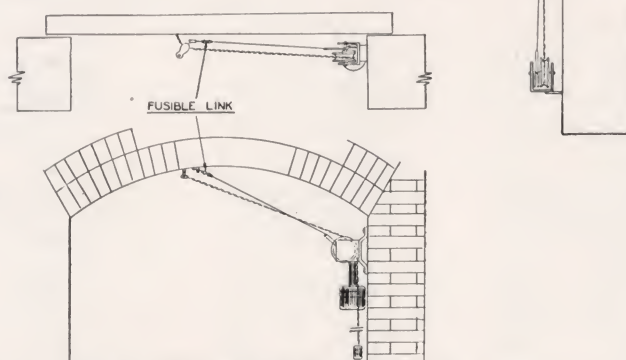


METHOD OF ATTACHING CLOSING
DEVICE ON OPPOSITE SIDE OF WALL



METHOD OF ATTACHING PINTLES AND CLOSING DEVICE TO SIDE WALL
WHEN THERE IS NOT ENOUGH ROOM ON WALL IN WHICH OPENING IS LOCATED

METHOD OF INSTALLING CLOSING DEVICE TO SIDE OF WALL
WHEN THERE IS NOT ENOUGH ROOM ON PINTLE SIDE OF DOOR

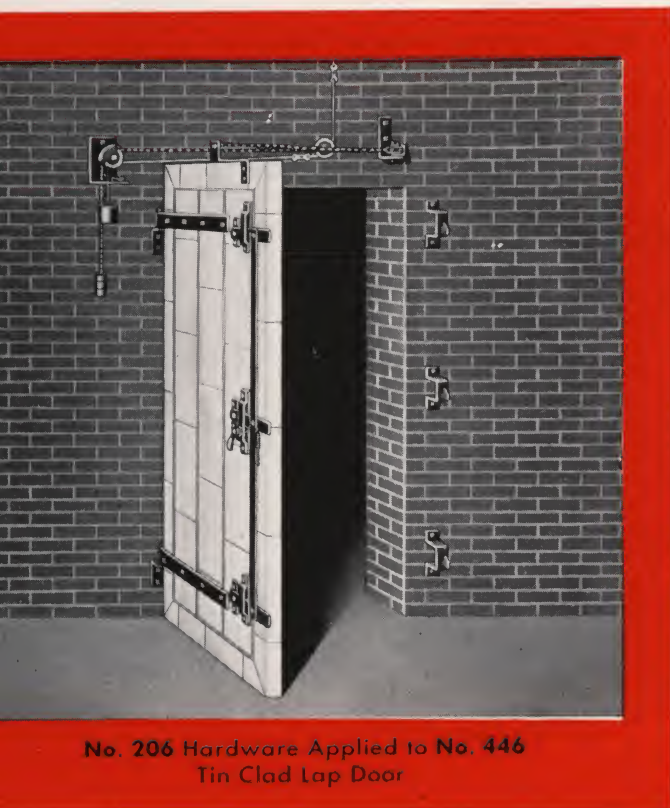


METHOD OF INSTALLING CLOSING DEVICE IN DOORWAY WHEN THERE
IS NOT ENOUGH ROOM AT EITHER PINTLE OR LATCH SIDE OF DOOR

R-W No. 206 Single Swinging Door Hardware

This Type Hardware Cannot be Applied to Sheet Metal No. 647 or 347 Doors

No. 206-2 for Two-Ply (1-5/8 inch) No. 446-2 Tin Clad Doors
No. 206-3 for Three-Ply (2-7/16 inch) No. 446-3 Tin Clad Doors



No. 206 Hardware Applied to No. 446
Tin Clad Lap Door

• HEADROOM REQUIRED

9" above top of door.

• SIDEWALL REQUIREMENTS

On hinge side — 10" wall space. On latch side — 3½" wall space.

This swing door hardware is designed to meet the demand for a less expensive set than the approved Labeled No. 406 Fixture illustrated on page 56.

This hardware will meet the requirements of Underwriters in certain territories.

The automatic link and cord arrangement on this hardware extends above the opening to ceiling and when used with doors on both sides of wall, same extends through so that the fusing of link on either side will cause the doors to close. When link fuses at 160 degrees Fahrenheit it releases the heavy weight, which drops onto the small weight and closes the door. The small weight merely maintains tension of chain. Hardware furnished for either flush or lap doors.

The following weights include a set of hardware complete with bolts (except pintle and keeper bolts), for attaching hardware and heavy steel washers for wall bolts.

Wall bolts will be furnished on request at a moderate price if thickness of wall is given.

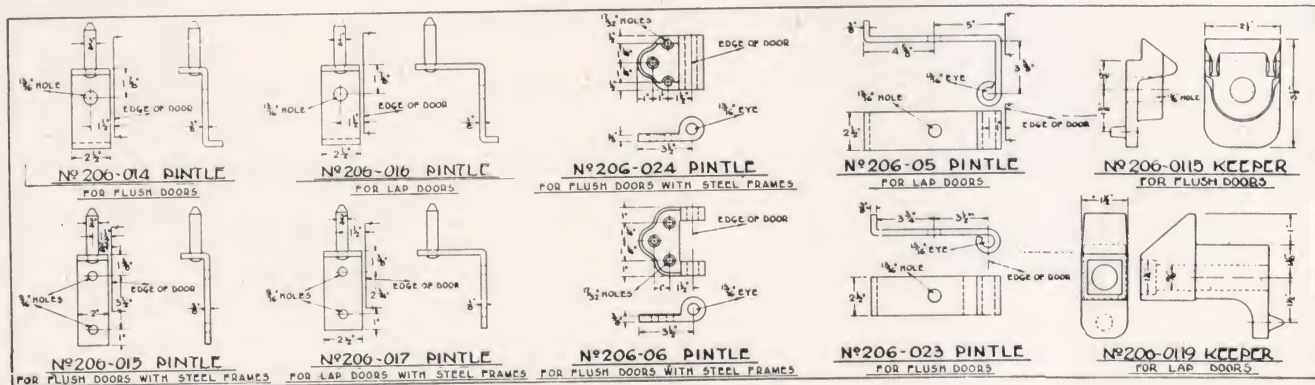
Weight List

No. 206-2 or 206-3 Hardware complete, for doors up to 5' 9" high (with 2 hinges), weight per set.	75 lbs.
No. 206-2 or 206-3 Hardware complete, for doors 5' 10" to 8' 9" high (with 3 hinges), weight per set.	85 lbs.
No. 206-2 or 206-3 Hardware complete, for doors 8' 10" to 12' 9" high (with 4 hinges), weight per set.	100 lbs.
No. 206-2 or 206-3 Hardware complete, for doors 12' 10" to 14' 4" high (with 5 hinges), weight per set.	112 lbs.
No. 206-2 or 206-3 Hardware, less automatics, deduct from weight of complete sets listed above.	24 lbs.
No. 206-2 or 206-3 Automatics only, weight per set.	34 lbs.

Frames for flush doors shown on pages 20-23. Detail of parts shown on page 70. See pages 14-15 for R-W Standard Approved and Labeled Tin Clad Fire Doors.

Directions for Ordering

See page 57 and give all information asked for.



R-W No. 306 Pair Swinging Door Hardware

This Type Hardware Cannot be Applied to Sheet Metal No. 647 or 347 Doors

No. 306-2 for Two-Ply (1-5/8 inch) No. 446-2 Tin Clad Doors
No. 306-3 for Three-Ply (2-7/16 inch) No. 446-3 Tin Clad Doors

HEADROOM REQUIRED SIDEWALL REQUIREMENTS

10" above top of door. 10" on each side of opening.

This swing door hardware is designed to meet the demand for a less expensive set than the Approved Labeled No. 506 illustrated on pages 58-59.

This hardware will meet the requirements of Underwriters in certain territories.

The automatic link and cord arrangement on this fixture operates in the same manner as No. 206, illustrated on opposite page. When link fuses at 160 degrees Fahrenheit it releases the heavy weight, which drops onto the small weight and closes the door. The small weight merely maintains tension of chain. The fixtures are so constructed that it is impossible for the wrong door to close first. A door control mechanism (see page 70 part 306-028) located at top center of opening prevents door with latch from closing before the other door closes thus assuring that both doors will properly close and latch whether the doors be closed by hand or automatically. Fixtures furnished for either flush or lap doors.

The following weights include a set of hardware complete with bolts (except pintle and keeper bolts), for attaching hardware and heavy steel washers for wall bolts.

Wall bolts will be furnished on request at a moderate price if thickness of wall is given.



No. 306 hardware applied to a No. 446 "Lap" doors. For "Lap" doors the No. 306-034 latch shown on the right hand door is furnished. The No. 306-026 latch is supplied for "Flush" doors . . . be sure to specify if "Flush" or "Lap".

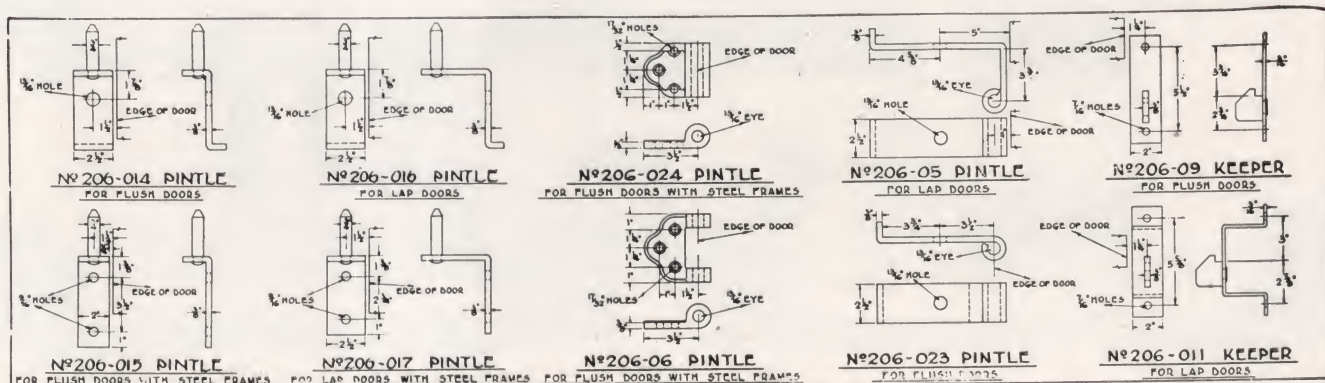
Weight List

No. 306-2 or 306-3 Fixtures complete, for doors up to 5' 9" (with 4 hinges), weight per set.	165 lbs.
No. 306-2 or 306-3 Fixtures complete, for doors 5' 10" to 8' 9" high (with 6 hinges), weight per set.	185 lbs.
No. 306-2 or 306-3 Fixtures complete, for doors 8' 10" to 12' 9" high (with 8 hinges), weight per set.	210 lbs.
No. 306-2 or 306-3 Fixtures complete, for doors 12' 10" to 14' 4" high (with 10 hinges), weight per set.	230 lbs.
No. 306-2 or 306-3 Fixtures, less automatics, deduct from weight of complete sets listed above.	58 lbs.
No. 306-2 or 306-3 Automatics only, weight per set.	78 lbs.
Astragals (3/16" x 3") can be furnished (with screws) when required, weight per foot.	2 lbs.

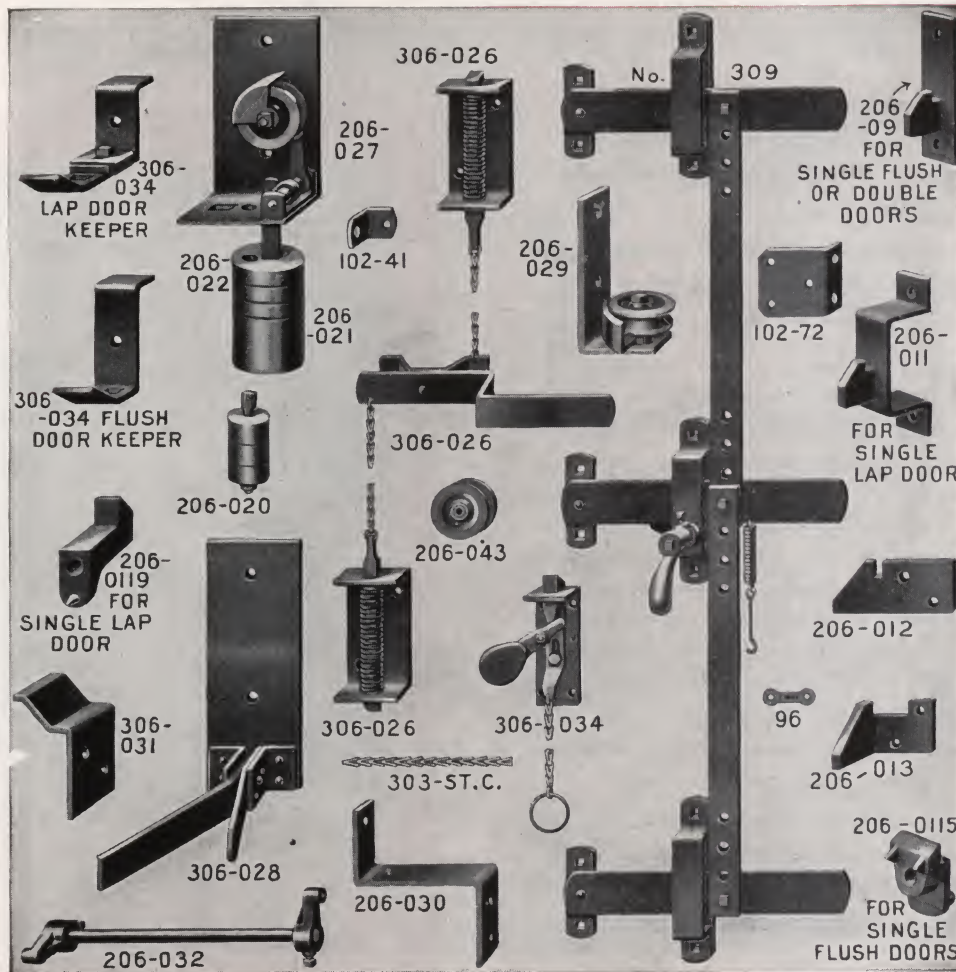
Frames for flush doors shown on pages 20-23. Detail of parts shown on pages 70-71. See pages 14-15 for R-W Standard Approved and Labeled Tin Clad Fire Doors.

Directions for Ordering

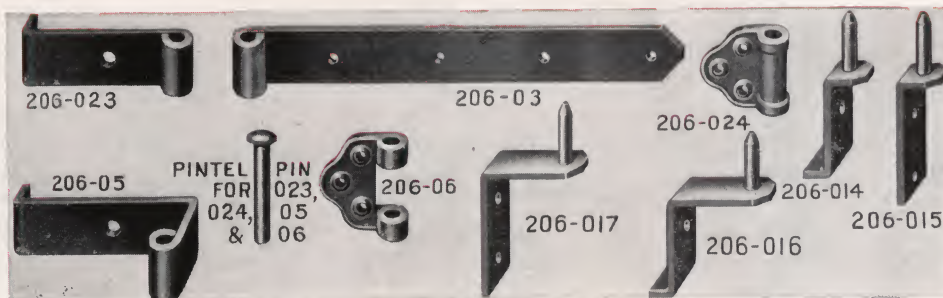
See page 59 and give all information asked for.



Details of Parts for



Pintle and Hinge Details for Swing Door Hardware



Nos. 206 and 306 Swing Hardware

206-2	206-3	306-2	306-3	Description
2	2	3	3	No. 96 Fusible Link, each
1	1	1	1	No. 102-41 Rope Angle, each
*	*	*	*	No. 102-61 4-inch diameter Steel Washers, each
*	*	1	1	No. 102-72 Bumper Shoe, each
*	*	*	*	†No. 206-09 Latch Keeper (Single flush doors in angle iron frames on the face of the wall or channel frames and doors in pairs), each
*	*	*	*	§No. 206-11-2 Latch Keeper (Single lap doors), each
*	*	*	*	§No. 206-11-3 Latch Keeper (Single lap doors), each
*	*	*	*	†No. 206-012 Latch Keeper (Single flush doors, in rabbeted frame only), each
*	*	*	*	†No. 206-013 Latch Keeper (Single flush doors in angle iron frames on the face of the wall or channel frames). Made right and left, each
1	1	2	2	No. 206-020 Weight (3 small) with weight holder, each
1	1	2	2	No. 206-021 Master Weight, 7 pounds, each
1	2	2	4	No. 206-022 Extra Weight, 2 pounds, each
1	1	2	2	No. 206-027 Pulley and Trip, complete
1	1	2	2	No. 206-029 Chain Pulley, each
1	1	2	2	No. 206-030 Chain Angle, each
1	1	1	1	No. 206-032 Shaft and Cranks, only used when doors are on both sides of wall, each
*	*	*	*	No. 206-043 Center Pulley with Bushing, each
*	*	*	*	†No. 206-0115 Latch Keeper (Single flush or double doors), each
*	*	*	*	§No. 206-0119-2 Latch Keeper for two-ply (1 3/4") single lap doors, each
*	*	*	*	§No. 206-0119-3 Latch Keeper for three-ply (2 5/8") single lap doors, each
1 pc.	1 pc.	1 pc.	1 pc.	No. 303-ST Steel Sash Chain, per foot
*	*	1	1	No. 306-026 Inside Latch (For standing door), complete, each
*	*	1	1	No. 306-028 Door Control, each
*	*	1	1	No. 306-031 Door Control Lifter, each
*	*	1	1	No. 306-034 Top and Bottom Latch (For lap doors) or 306-023 Top and Bottom Latch (For flush doors)
1	1	1	1	No. 309 Triple Latch (With flush or lap door keepers), complete, each
				Specify style of Keepers wanted. Connecting Bars made in five lengths, i.e.: 24" adjustable for doors 4' 3" to 6' high. 30" adjustable for doors 5' 6" to 7' high. 36" adjustable for doors 6' 6" to 8' high. 42" adjustable for doors 7' 6" to 9' high. 48" adjustable for doors 8' 6" to 10' high.
*	*	*	*	Two connecting bars are furnished with each latch.
1	1	1	1	No. 649-220C 2 1/2" diameter Cast Washers used only with 206-0115 and 206-0119 Keepers, each
				Package of Screws and Bolts

*Quantity as required.

§Unless otherwise specified No. 206-011 will be furnished for lap doors.

†Unless otherwise specified No. 206-09 will be furnished for flush doors.

Detail of Pintels and Hinges for Nos. 206 and 306 Swing Fire Door Hardware.

Illustrated on Opposite Page

Underwriters require hinges to cover three-fourths the width of the door. All hinge straps are made of 2 1/2 x 3/8-inch steel. Doors up to 7 feet 3 inches high require 2 hinges; 7 feet 4 inches to 8 feet 3 inches high require 3 hinges, and doors 8 feet 4 inches to 10 feet 4 inches require 4 hinges.

No. 206-03 Hinge Straps, 12".
No. 206-03 Hinge Straps, 15".
No. 206-03 Hinge Straps, 18".
No. 206-03 Hinge Straps, 21".
No. 206-03 Hinge Straps, 24".
No. 206-03 Hinge Straps, 30".
No. 206-03 Hinge Straps, 36".
No. 206-03 Hinge Straps, 42".
No. 206-03 Hinge Straps, 48".
No. 206-05-2 Hinge Pintles with pintle pins (for two-ply lap doors only).
No. 206-05-3 Hinge Pintles with pintle pins (for three-ply lap doors only).
No. 206-06 Hinge Pintles with pintle pins (flush doors, angle iron frames).
No. 206-014 Hinge Pintles (flush doors, masonry walls).
No. 206-015 Hinge Pintles for flush doors with angle iron or channel iron frames.
No. 206-016-2 Hinge Pintles for two-ply (1 5/8") lap doors, masonry walls.
No. 206-016-3 Hinge Pintles for two-ply (2-7/16") lap doors, masonry walls.
No. 206-017-2 Hinge Pintles for two-ply (1 5/8") lap doors with angle iron or channel iron frames.
No. 206-017-3 Hinge Pintles for three-ply (2-7/16") lap doors with angle iron or channel iron frames.
No. 206-023 Hinge Pintles with pintle pins (flush doors).
No. 206-024 Hinge Pintles with pintle pins (flush doors) angle iron frames.

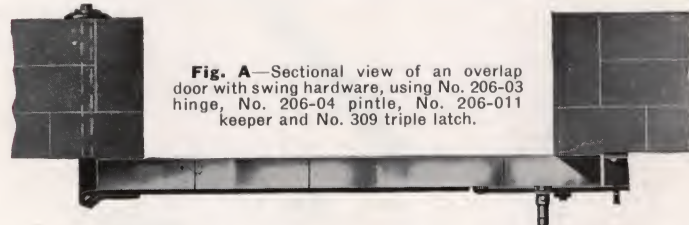


Fig. A—Sectional view of an overlap door with swing hardware, using No. 206-03 hinge, No. 206-04 pintle, No. 206-011 keeper and No. 309 triple latch.

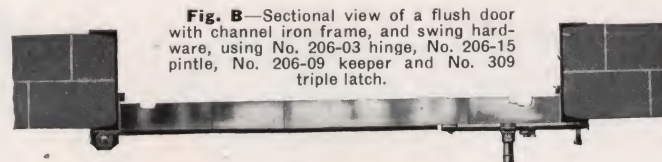


Fig. B—Sectional view of a flush door with channel iron frame, and swing hardware, using No. 206-03 hinge, No. 206-15 pintle, No. 206-09 keeper and No. 309 triple latch.

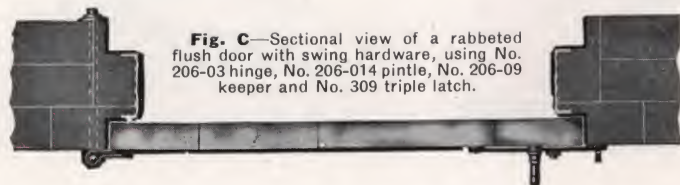


Fig. C—Sectional view of a rabbeted flush door with swing hardware, using No. 206-03 hinge, No. 206-014 pintle, No. 206-09 keeper and No. 309 triple latch.

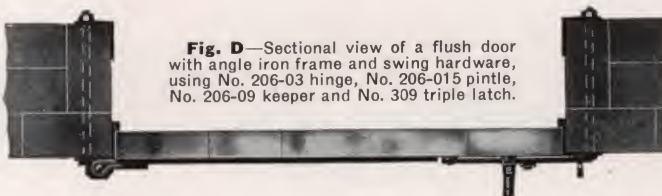


Fig. D—Sectional view of a flush door with angle iron frame and swing hardware, using No. 206-03 hinge, No. 206-015 pintle, No. 206-09 keeper and No. 309 triple latch.

Fusible Links for Fire Doors



Full Size Cut No. 97



Full Size Cut No. 096



Full Size Cut No. 96



Full Size Cut No. 96 1/2



Full Size Cut No. 596

- **No. 97 APPROVED FUSIBLE LINK**

Included in list of fire door hardware inspected and approved by the Underwriters' Laboratories, Inc., under direction of the National Board of Fire Underwriters. Approved in 160°-212°-286°-360°. Unless otherwise specified, 160° links will be furnished.

Should not be used to carry more than 25 pounds.

- **No. 096 FACTORY MUTUAL FUSIBLE LINK**

Manufactured especially to meet the specifications of the Factory Mutual Laboratories.

Fuses at 160° F.

Should not be used to carry more than 25 pounds.

- **Nos. 96 AND 96 1/2 FUSIBLE LINKS**

For fire door hardware or for all doors or windows constructed to close automatically by heat.

Fuses at 160° F. Can be made special for other temperatures upon consultation.

No. 96 should carry no more than 25 lbs.

No. 96 1/2 should carry no more than 15 lbs.

- **No. 596 FUSIBLE LINK**

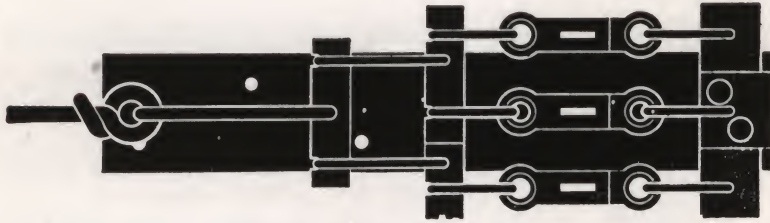
Very small in size for use on windows.

Fuses at 160° F.



**Do You Have
a Special Fusible
Link Problem?
Let R-W Solve It.**

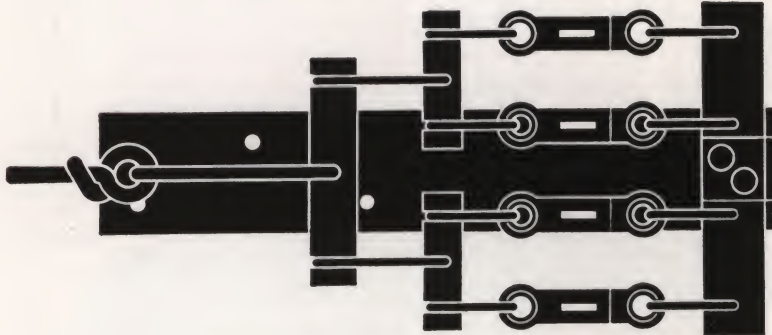
Double, Triple, and Quadruple Fusible Links



No. 96-3 or 97-3 Triple Link
Used to Carry Not More than 75 lbs.



No. 96-2 or 97-2 Double Link
Used to Carry Not More than 50 lbs.

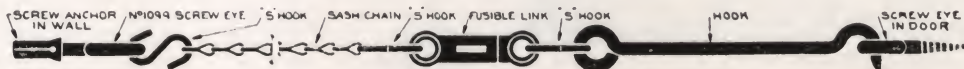


No. 96-4 or 97-4 Quadruple Link
Used to Carry Not More than 100 lbs.

There are many cases where a single fusible link is not strong enough to hold the required load and in such cases we recommend that either a double, triple or quadruple link is used. Our regular No. 96, 096, or 97 links (see page 72) are used in combinations as shown.

These multiple link assemblies are rigged up in such a manner that if any one of the links fuse — the whole assembly will separate. The load is always equally spread over all of the links in the set up.

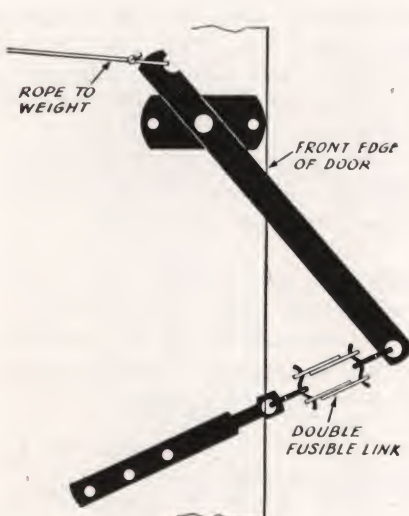
No. 196 FUSIBLE LINK SET



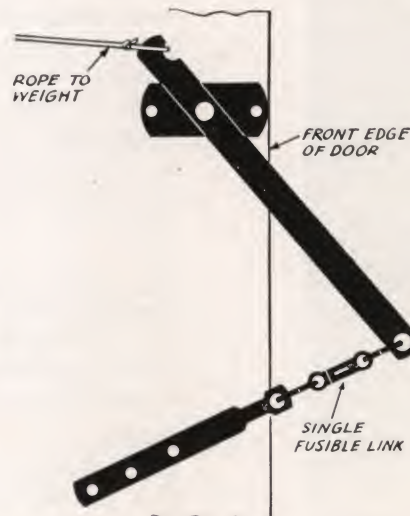
A chain and fusible link designed to hold swinging doors having door checks or closers, in the open position. When the link fuses, the door closer is free to

close the door. The hook makes it convenient for releasing the door in case it is desired to close it manually. Packed one set in a package.

No. 90 FUSIBLE LINK LEVER ATTACHMENT



No. 90x96-2 or 90x97-2 Double Link Attachment
Used to Carry Not More than 200 lbs.



No. 90x96-1 or 90x97-1 Single Link Attachment
Used to Carry Not More than 100 lbs.

A simple attachment to be used for handling of weights on sliding fire doors up to 200 lbs.

The No. 90 x 96-1 or 90 x 97-1 attachment will satisfactorily handle weights up to 100 lbs.

For handling weights over 100 lbs. and up to 200 lbs. specify R.W. No. 90x96-2 or 90x97-2.

Illustrations show how attachment is made to the fire door.

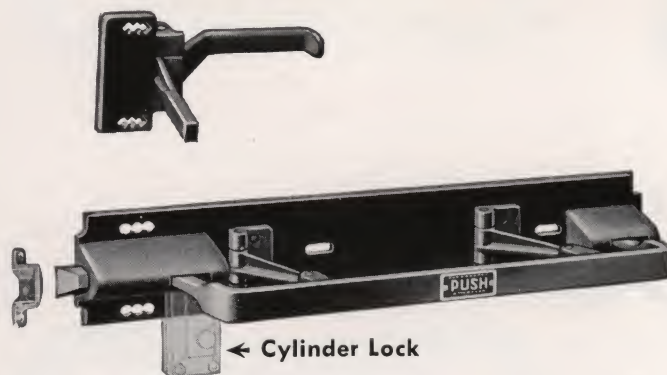
Panic Bolts for Single Swing Doors

Patent No. 2,320,298

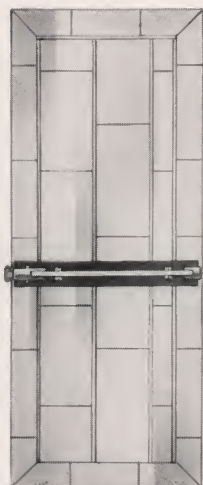
Inspected and Approved by the Underwriters' Laboratories, Inc., Sponsored by the National Board of Fire Underwriters for Class B, C, D, and E Openings



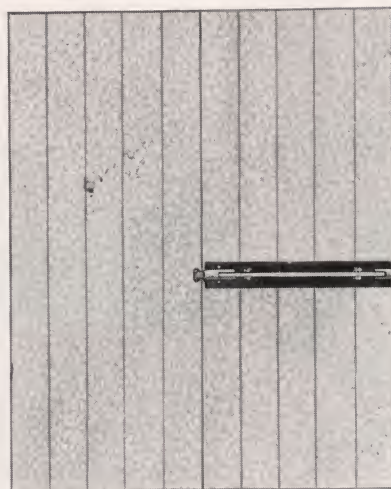
No. 144 Bolt with Outside Handle, Reversible Right Hand or Left Hand.



No. 144 Bolt with Cylinder Lock, Hand Not Reversible.



No. 144 Bolt Used on Single Swing Doors. (No. 446 Door) Shown



No. 144-2 Used on Active Door of a Pair of Swing Doors. (No. 647 Door) Shown

• USE

For single swing doors or the active door of a pair of swing doors from 1 3/8" to 2 5/8" thick.

For fire doors and industrial doors. When used on fire doors, suitable only for use where a single point latch is acceptable, that is on a single door opening not more than 4' wide and 8' high and on an opening for pairs of doors not more than 8' wide and 8' high.

• THREE STYLES

No. 144 for wood doors or tin-clad fire doors.

No. 144-1 furnished with special mounting plates, for use on corrugated steel fire doors or on steel plate doors.

No. 144-2 furnished with special shoulder bolts, for R-W No. 647 fire doors.

• FOUR SIZES

Size of Bolt	Width of Opening	Weight, Each No. 144 Bolt		
		144 446 Door	144-1 347-1347 Door	144-2 647 Door
24	2' 0"-2' 5"	14-1/4	18-1/4	15-1/4
30	2' 6"-2' 11"	17-1/4	21-1/4	18-1/4
36	3' 0"-3' 5"	20-1/4	24-1/4	21-1/4
42	3' 6"-4' 0"	23-1/4	27	24-1/2

When Cylinder Lock is used, Add 3/4 Lb. Without Outside Handle, Deduct 2-1/4 Lbs. (If Outside Handle is Omitted, Cylinder Lock **Cannot** be Used.)

• GENERAL DESCRIPTION

Standard design of malleable iron and steel. Sometimes certain parts of bronze are desirable to guard against sparking or corrosion. Then bolt proper, keepers, handle and links are made of bronze. To order this type add "B" to catalog number. For solid bronze bolts add "SB".

Can be furnished with cylinder lock to prevent operation from the outside except when unlocked but not interfering with operation from the inside at any time.

The outside operating handle permits door to be operated from the outside when not essential to have door locked from the outside. Can be furnished without outside handle if desired. If outside handle is omitted, cylinder lock **cannot** be used.

• FINISH

Regularly furnished gray enamel.

See "General Description" above for special conditions.

• DIRECTIONS FOR ORDERING

Follow directions given for No. 244 (see opposite page), also state if outside handle or lock is desirable.

Panic Bolts for Pair Swinging Doors

Inspected and Approved by the Underwriters' Laboratories, Inc., Sponsored by the National Board of Fire Underwriters

Size of Bolt	Width of Opening	Weight, Each 144 and 244 Set		
		144 x 244 446 Door	144 x 244-1 347-1347 Door	144 x 244-2 647 Door
24	4' 0"-4' 11"	37-1/4	41-1/4	38-1/4
30	5' 0"-5' 11"	43-1/4	47-1/4	44-1/4
36	6' 0"-6' 11"	49-1/4	53-1/4	50-1/4
42	7' 0"-8' 0"	55-1/2	59-1/2	56-1/2

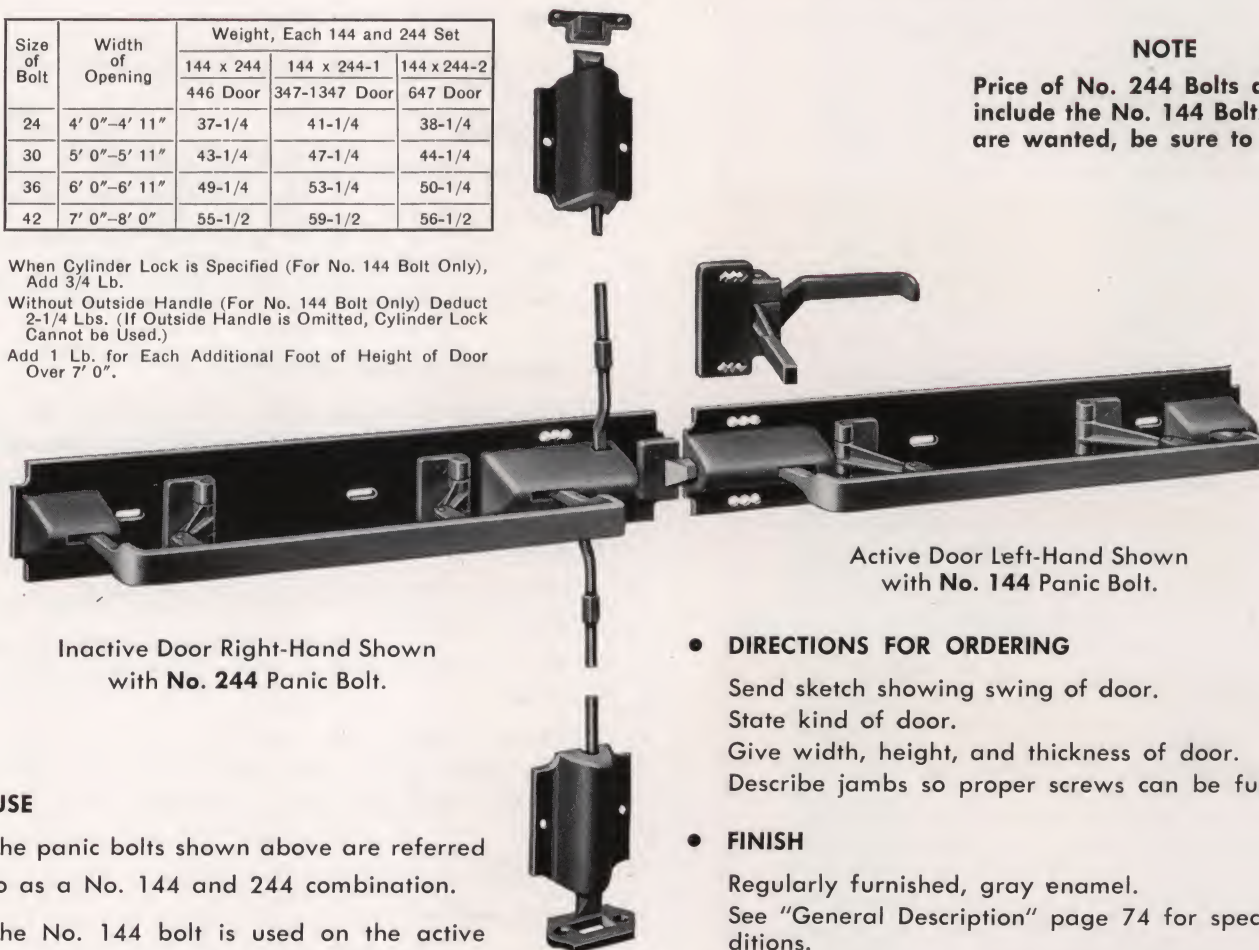
When Cylinder Lock is Specified (For No. 144 Bolt Only), Add 3/4 Lb.

Without Outside Handle (For No. 144 Bolt Only) Deduct 2-1/4 Lbs. (If Outside Handle is Omitted, Cylinder Lock Cannot be Used.)

Add 1 Lb. for Each Additional Foot of Height of Door Over 7' 0".

NOTE

Price of No. 244 Bolts does not include the No. 144 Bolt. If both are wanted, be sure to specify.



Inactive Door Right-Hand Shown with No. 244 Panic Bolt.

Active Door Left-Hand Shown with No. 144 Panic Bolt.

• USE

The panic bolts shown above are referred to as a No. 144 and 244 combination.

The No. 144 bolt is used on the active door and the No. 244 on an inactive door.

The No. 244 bolt used also where it is necessary to lock at both the top and bottom instead of to the side jamb.

The general description of the No. 144 panic bolt is shown on the opposite page.

• THREE STYLES

No. 144x244 for wood doors or Tin Clad Fire Doors. No. 144x244-1 furnished with special mounting plates . . . For use on corrugated steel fire doors or on steel plate doors.

No. 144x244-2 for R-W No. 647 "FyeR-Ward" fire doors . . . Special shoulder bolts are furnished for this style.

• DIRECTIONS FOR ORDERING

Send sketch showing swing of door.

State kind of door.

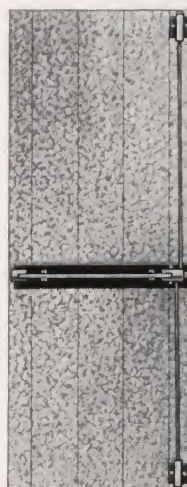
Give width, height, and thickness of door.

Describe jambs so proper screws can be furnished.

• FINISH

Regularly furnished, gray enamel.

See "General Description" page 74 for special conditions.



No. 244-2 used on Single Swing Door.

(No. 647 Door) Shown



No. 244-1 Panic Bolt is used on the Inactive Door at Left, and No. 144-1 Panic Bolt is used on the Active Door.

(No. 347 or 1347 Door) Shown

Round Track Fire Door Hangers



Left: *No. 542-CS-3
Hanger

No. 1641 Hanger
Same Except Bolt
Holes Are in
Straight Line

*No. 542-CS-2
Hanger Same
Except with Offset
in Steel Pendant



Right:
No. 2641 Hanger



Left: No. 1640
Hanger

No. 2640 Hanger
Same Except Bolt
Holes in Pendant
Are Staggered
as in No. 2641
Hanger

- **USE**

For use with round track fire door hardware sets.

- **HANGERS**

No. 542-CS-2 for 2-ply Tin Clad doors.

No. 542-CS-3 for 3-ply Tin Clad doors.

Nos. 1640 and 1641 for "FyeR-Wall" doors.

Nos. 2640 and 2641 for "FyeR-Ward" doors.

- **INSPECTION AND APPROVAL**

Inspected by Underwriters' Laboratories, Inc., sponsored by the National Board of Fire Underwriters. Also approved by Factory Mutual Laboratories.

- **CONSTRUCTION**

Wheels, malleable iron, 4-5/16" diameter.

Roller bearing.

Nos. 542-CS-2 and 3, 1641, and 2641 have limit roller.

Over-all height: No. 542-CS-2 and 3, 19-13/16"; No. 1640, 16-3/4"; No. 1641, 18-1/16"; No. 2640, 16-3/4"; and No. 2641, 17-11/16".

- **FINISH**

Gray enamel.

- **PROPER HARDWARE SETS**

No. 542-CS-2 hanger used with Nos. 604-2, 641-2, 645-2, and 646-2 fire door hardware.

No. 542-CS-3 hanger used with Nos. 604-3, 641-3, 645-3, and 646-3 fire door hardware.

No. 1640 hanger used with No. 1640 fire door hardware.

No. 1641 hanger used with Nos. 1604, 1641, 1645, and 1646 fire door hardware.

No. 2640 hanger used with Nos. 640-2, 640-3, and 2640 fire door hardware.

No. 2641 hanger used with Nos. 2604, 2641, 2645, and 2646 fire door hardware.

*NOTE — These hangers are standard and packed regularly with round track fire door hardware sets. If No. 542-CM malleable hangers are desired, they can be furnished at an additional cost.

Round Track Fire Door Hardware

- **SETS**

Single link for single sliding door.

No. 646 for Tin Clad doors.

No. 1646 for "FyeR-Wall" doors.

No. 2646 for "FyeR-Ward" doors.

Two link for single sliding doors.

No. 645 for Tin Clad doors.

No. 1645 for "FyeR-Wall" doors.

No. 2645 for "FyeR-Ward" doors.

Single link for sliding doors in pairs.

No. 604 for Tin Clad doors.

No. 1604 for "FyeR-Wall" doors.

No. 2604 for "FyeR-Ward" doors.

- **USE**

No. 645 for situations where headroom exceeds 3' and where two links are needed.

No. 646 for situations requiring only one fusible link.

No. 604 for situations such as not sufficient space on one side to slide a large door.

- **INSPECTION AND APPROVAL**

(For Nos. 645, 646, 1645, 1646, 2645 and 2646 hardware). Included in the list of fire door hardware inspected by Underwriters' Laboratories, Inc., sponsored by the National Board of Fire Underwriters. Also approved by the Factory Mutual Laboratories.

- **OPERATION**

Nos. 645, 1645, and 2645, see 102 hardware (pages 30-31).

Nos. 646, 1646, and 2646, see 201 hardware (pages 32-33).

Nos. 604, 1604, and 2604, see 204 hardware (pages 36-37).

- **DIRECTIONS FOR ORDERING**

To order follow directions given by sets referred to above.



No. 2645 Hardware for No. 647 Doors



No. 2646 Hardware for No. 647 Doors



No. 604 Hardware for No. 446 Tin Clad Doors

Round Track Fire Door Hardware

For Sliding Doors, Level Track



No. 2641 Hardware for No. 647 Doors.



No. 1602 Hardware for No. 347 Doors.

- **SETS**

Single link for single sliding doors.

No. 641 for Tin Clad doors.

No. 1641 for "FyeR-Wall" doors.

No. 2641 for "FyeR-Ward" doors.

Single link for sliding doors in pairs.

No. 602 for Tin-Clad doors.

No. 1602 for "FyeR-Wall" doors.

No. 2602 for "FyeR-Ward" doors.

- **USE**

No. 641 for openings where there is not enough headroom to place the track on an incline of $\frac{3}{4}$ " to the foot.

No. 602 for special conditions such as not sufficient wall space on one side to slide a single door and where low headroom will not permit use of regular hardware.

- **INSPECTION AND APPROVAL**

Nos. 641, 1641, and 2641 hardware.

Included in list of fire door hardware inspected by Underwriters' Laboratories, Inc., sponsored by the National Board of Fire Underwriters. Also approved by the Factory Mutual Laboratories.

- **OPERATION**

Nos. 641, 1641 and 2641 hardware, see 303 hardware (pages 38-39).

Nos. 602, 1602, and 2602 hardware, see 302 hardware (page 42).

- **DIRECTIONS FOR ORDERING**

To order follow directions given by sets referred to above.

Round Track Fire Door Hardware

For Sliding Doors Drop Bracket Level Track

- **SETS**

Single link for single sliding doors.

No. 640 for Tin Clad doors.

No. 1640 for "FyeR-Wall" doors.

No. 2640 for "FyeR-Ward" doors.

Single link for pairs of sliding doors.

No. 605 for Tin Clad doors.

No. 1605 for "FyeR-Wall" doors.

No. 2605 for "FyeR-Ward" doors.

- **USE**

For locations with low headroom so that the track must be dropped down in front of the door.

- **INSPECTION AND APPROVAL**

(For Nos. 640, 1640, and 2640 only). Included in the list of fire door hardware inspected by Underwriters' Laboratories, Inc., sponsored by the National Board of Fire Underwriters. Also approved by Factory Mutual Laboratories.

- **OPERATION**

Nos. 640, 1640 and 2640, see 304 hardware (pages 40-41).

Nos. 605, 1605 and 2605, see 305 hardware (page 43).

- **DIRECTIONS FOR ORDERING**

To order follow directions for ordering in sets referred to above.



No. 2640 Hardware for No. 647 Doors.



No. 1605 Hardware for No. 347 Doors.



What and Where to Find It...

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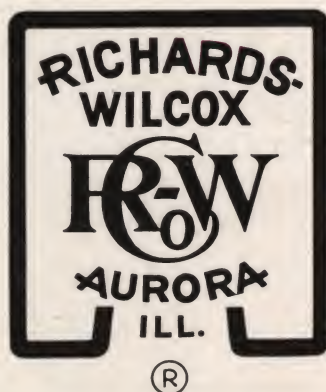
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